FEBRUARY 29, 1960

PAPER TRADE JOURNAL

Bleaching Hardwood Soda Pulp With Chlorine Dioxide at Mead

Rubber-Covered Rolls Are Precise Tools. Take Care of Them!

Calculating Minimum Chest Levels To Continuously Pump Slurries

NSSC Pulping of Poplar Veneer Wastes at the Uti-Le Co., Italy

Specializing in NORTH AMERICAN grades of GROUNDWOOD PULP: Bleached, Semi-Bleached and Unbleached dry, moist or wet, centri-cleaned and freshly ground to every freeness requirement . . . prompt deliveries via direct rail or truck.

WOODPULP, INC.

Chrysler Building, NEW YORK 17, N. Y.

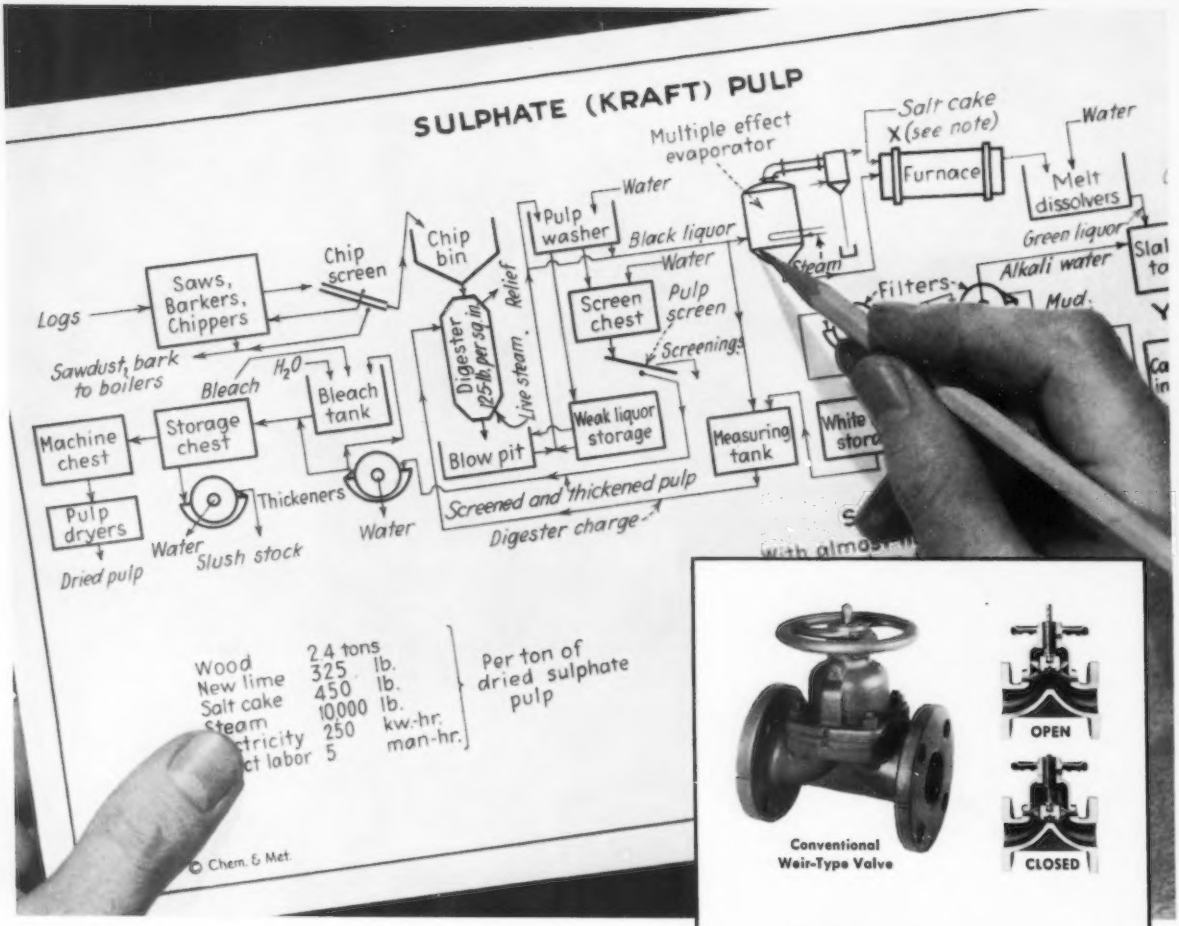
CHEMICAL PULP: Bleached, Semi-bleached and Unbleached Sulphates and Sulphites.

Also offering high grade secondary fibres . . . direct from manufacturers' mills.

Telephone OXford 7-7820

Cable Addr.—"PULPAGENT"

Editorial Dept.
University Microfilms, Inc.
313 N. First St.
Ann Arbor, Mich.



Papermen call it...

"The most versatile valve in the industry"

Grinnell-Saunders Diaphragm Valves serve a variety of uses. They efficiently handle compressed air and vacuum, corrosive chemicals, abrasive clay coatings. The resilient diaphragm lifts high in the open position to provide a smooth, streamline passage, which is leaktight to the atmosphere. When the valve is closed, the diaphragm seals tightly, even over fibrous particles and grit, to prevent leakage in either direction.

Particularly effective in handling slurries are Grinnell's *Straightway* Diaphragm Valves, which are exclusive with Grinnell. The patented straight-through body design, and the action of the diaphragm in rising completely into the bonnet, provide for free passage of the product without clogging. There are other advantages, too, with Grinnell *Straightway* Valves . . . such as keeping turbulence, pressure drop, and body wear to a minimum.

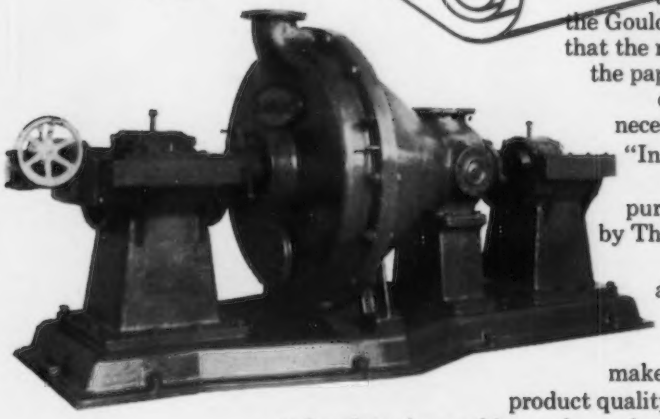
Grinnell-Saunders Diaphragm Valves are offered in a choice of body, lining and diaphragm materials. They are available for handwheel or power operation. For details, see Chemical Engineering Catalog or Sweet's Plant Engineering File — or write directly to Grinnell Company.

GRINNELL-SAUNDERS DIAPHRAGM VALVES

GRINNELL COMPANY, PROVIDENCE 1, R. I. • BRANCH WAREHOUSES AND DISTRIBUTORS FROM COAST TO COAST
PIPE FITTINGS • VALVES • PIPE HANGERS • PREFABRICATED PIPING • UNIT HEATERS • PIPING SPECIALTIES

"A better sheet at lower price"...

says David K. Cooper, Jr., Chief Engineer, Gould Paper Company, Lyons Falls, New York



"In our efforts to produce a better sheet at lower price than our competitors," the Gould Paper Company reports, "we found that the refining equipment for stock ahead of the paper machines did not permit the close control of the stock properties that is necessary to meet exacting specifications.

"In order to get the necessary control on No. 2 Machine, it was decided to purchase a Claflin refiner, manufactured by The Emerson Manufacturing Company.

"Results have been excellent, and a similar machine has been purchased for installation on No. 1 Machine.

"This equipment gives the paper makers the tools necessary to improve our product quality, and by making the sheet less likely to break in the machine, reduces the labor entailed in restoring the sheet."

Whether, like the Gould Paper Company, your mill is refining bleached and unbleached groundwood blended with other hardwoods, or other grades, chances are excellent that the Emerson Claflin can help you produce "a better sheet at lower cost," too.

Recognized as *the* most versatile of all refiners, the Emerson Claflin is matchless in preparing a wide range of furnishes — Fine Papers . . . Container and Liner Board . . . Bag, Wrap, Multi-wall, Gumming . . . Corrugating . . . Roofing . . . and Wall Board . . . Hot Stock, High Yield and others.

Only Emerson makes the Claflin. For more information, write The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusets.

Now . . . the NEW

EMERSON CLAFLIN 303

newly engineered for new operating efficiency

Among its features —

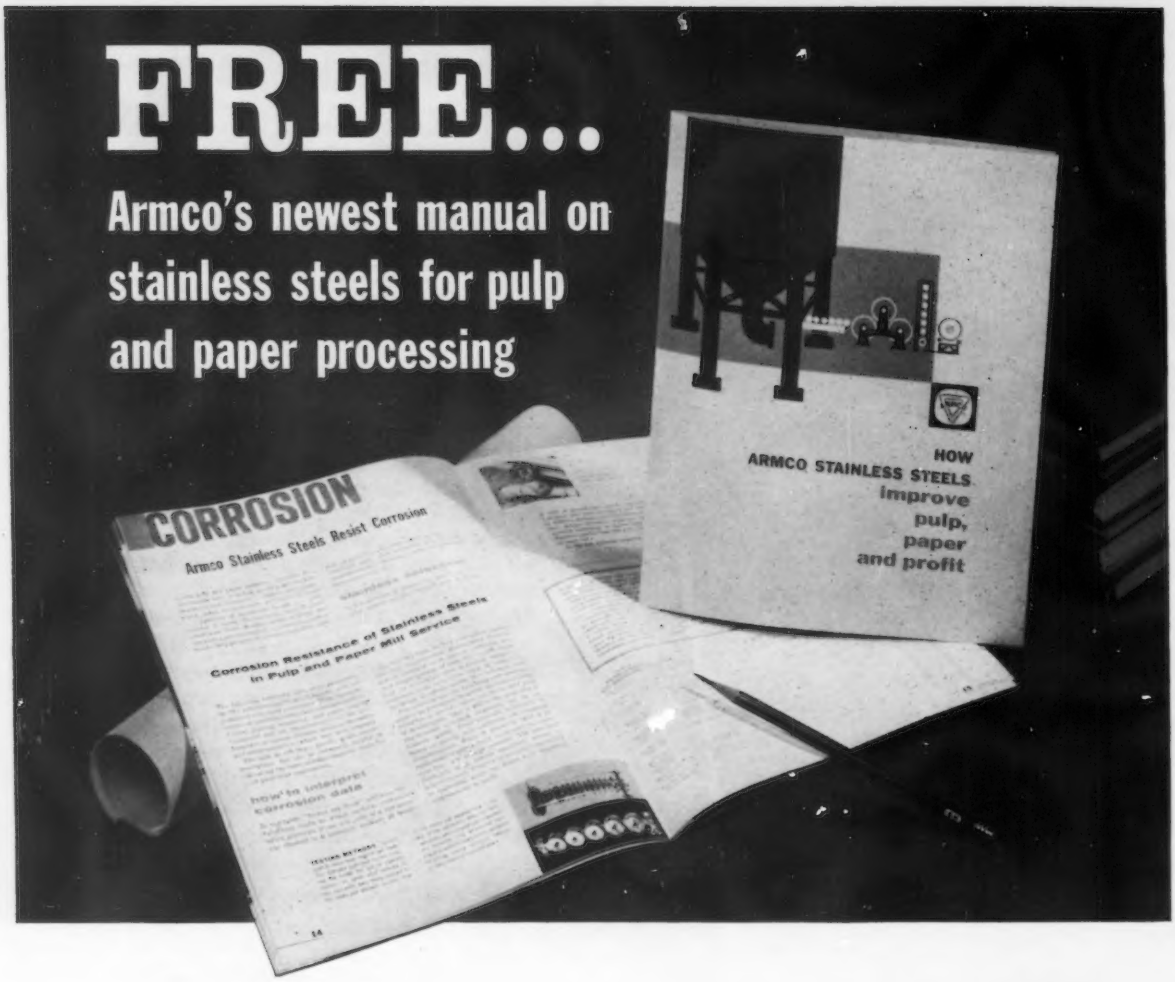
- Oil mist lubrication system
- Visual oil and pressure gauges
- Interchangeable shafts
- Micro-feed plug adjustment
- Withstands 100 psi throughout
- Split head for easy stuffing removal
- Fully enclosed bearings
- Centralized inspection and control points

Emerson CLAFLIN®

A product of BOLTON EMERSON

FREE...

Armco's newest manual on stainless steels for pulp and paper processing



This 32-page manual is completely new. It replaces a 12-page booklet Armco produced several years ago—a good indication of the expanding use of stainless steels in pulp and paper mills.

This manual was prepared for technical people who must maintain quality and quantity of production, design equipment, or specify materials of construction. Experiences of mill engineers, equipment performance histories, practical technical information—especially the section of authoritative corrosion resistance data—are presented to show how Armco Stainless Steels offer profit-making advantages in pulping, bleaching and paper making.

Mail the coupon for your free copy.

New steels are born at Armco

ARMCO STEEL CORPORATION
1330 Curtis Street, Middletown, Ohio

Send me a copy of your new booklet, **"How Armco Stainless Steels Protect Pulp, Paper and Profit."**

Name_____ Title_____

Firm_____

Street_____

City_____ Zone____ State_____

ARMCO STEEL

Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation

PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

JOHN C. W. EVANS
Editor

PAUL D. VAN DERVEER
Associate Editor

R. E. THUEMMES
Associate Editor

HARRY L. DYER
Assistant Editor

K. E. PATTERSON
Assistant Editor

L. HAMEL
Production Editor

WM. N. PERRY
Staff Artist

LOCKWOOD TRADE JOURNAL CO., INC.
49 West 45th Street, New York 36.
Plaza 7-2370

GEORGE E. LOCKWOOD.....President and Treasurer
ARTHUR E. GORDON.....Vice President
FREDERICK E. WINKLER.....Secretary

Published by Lockwood Trade Journal Co., Inc., at 34 North Crystal St., East Stroudsburg, Pa. Second class postage paid at East Stroudsburg, Pa. Printed in U.S.A. Copyright 1960 by Lockwood Trade Journal Co., Inc. Paper established Feb. 17, 1899, combined with Paper Trade Journal Nov. 16, 1899. Paper established Sept. 21, 1910, combined with Paper Trade Journal February 19, 1926. All rights to the above titles reserved. Also publishers of Lockwood's Annual Directory of the Paper and Allied Trades.

Week of FEBRUARY 29, 1960—*Vol. 144, No. 9*

TRENDS 7
NEWS OF THE WEEK 11

FEATURE ARTICLES

Mead Now Bleaches Hardwood Soda Pulp with Chlorine Dioxide 24
Determining Minimum Chest Levels for Continuous Pumping Applications 30
Care of Rubber Covered Rolls 32
Italy's Latest NSSC Mill Utilizes Poplar Veneer Wastes 34
Georgia Tech Focuses on Improving Material Handling Methods 37

PAPER PEOPLE 14
NEWS OF CONVERTERS 20
PRICES OF FIBERS 40
NEWS OF SUPPLIERS .. 41
FIGURES OF THE WEEK 42
NEW EQUIPMENT & SUPPLIES 43
CLASSIFIED ADVERTISING 46
ADVERTISERS INDEX .. 50

REMEMBER THESE DATES

May 23-25. TAPPI Coating Conference, Edgewater Beach Hotel, Chicago, Ill.

June 14-16. TAPPI Bleaching Conference, Edgewater Beach Hotel, Chicago, Ill.

June 7-9. PIMA National Meeting, St. Francis Hotel, San Francisco, Calif.

SUBSCRIPTIONS →

Paper & Pulp Mills, Converters and their Personnel	1 yr.	2 yrs.	3 yrs.
United States and Canada ...	$5.00	$8.00	$10.00
All companies or individuals not engaged in the manufacture of paper and pulp, or in the converting thereof; U.S.A. and Canadian price per year: $7.50			
Latin American Countries ...	15.00	25.00	30.00
All Other Countries ...	20.00	30.00	40.00

Single copy price of current issues:
North America 50c Foreign $1.00

R. E. BOETSCH Director of Circulation

PAPER TRADE JOURNAL—49 W. 45th St., N.Y. 36, N.Y.
Please enter a subscription with the mailing address as follows:
Name .....
Address .....
City ..... Zone ... State .....
If subscription is for an individual, please fill in:
Employer ..... City ..... State ...
Position ..... Employer's Business .....
Amount $ ..... ☐ Bill Me ☐ Bill Company ☐ Check Attached

revolutionary new paper making machine

Sandy Hill rotoformer®

Development of this remarkable new machine signifies the first major break-through in paper making in 150 years. The Rotoformer combines the best features of the cylinder machine and the Fourdrinier. The 20 Rotoformer units already in successful use clearly indicate their operational simplicity; their unusual ability to give uniformity of caliper across the machine, and their unique adaptability to special products. Learn how this major achievement from Sandy Hill can fit into your operation.

Call or write us today for your copy of the new Rotoformer Catalog Section.

THE
SANDY HILL
IRON AND BRASS WORKS
HUDSON FALLS, N. Y.

PATENTED
Other patents applied for

Trends

1959 Paper and Board Exports Up

Preliminary data on exports for 1959 indicate that total paper and board exports were 891,959 tons in comparison to 841,633 tons exported the previous year. Paper exports declined from 354,918 tons to 335,044 tons, while paperboard exports increased from 347,724 tons to 422,542 tons. Wet machine board decreased slightly from 3,893 tons to 3,567 tons in comparison to building board which increased moderately from 20,637 tons to 21,364 tons. Converted paper products increased substantially from 116,352 tons to 174,621 tons.

Beckett Urges Participation in Government

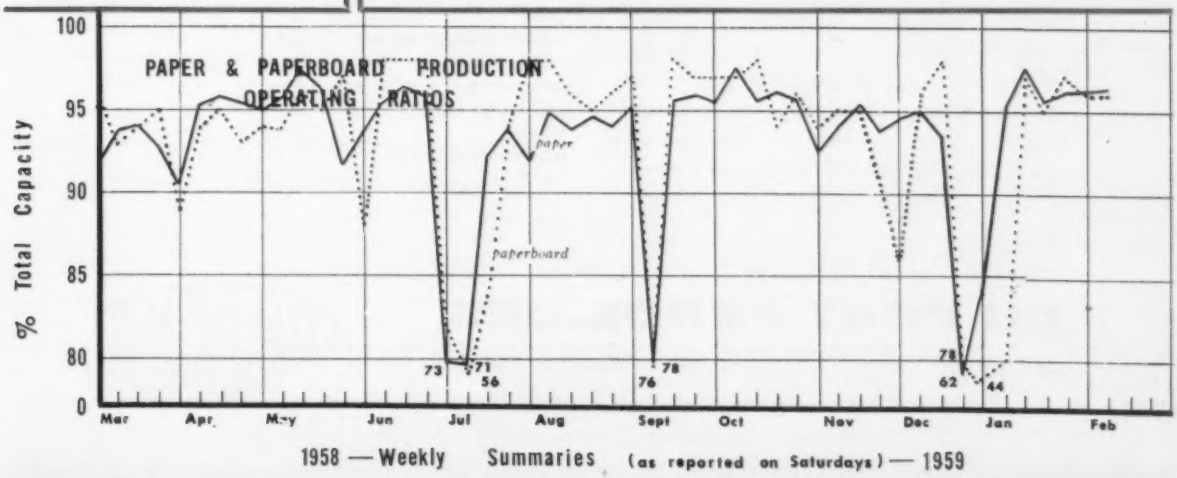
William Beckett, president of the Beckett Paper Co., urged active participation in government in his talk at the 99th Annual Meeting of the Writing Paper Manufacturers Assn. Mr. Beckett's talk "Remembrance of Things Past," was a philosophical, as well as historical look at the Association's first 100 years. "What finer resolve could we consider as we approach our second century," he said, "than that in it we will not withhold any service to the cause of liberty and the economical conduct of government at every level? How can we, as careful businessmen, feel otherwise when we contemplate the staggering colossus of entrenched bureaucracy, high and low, wasting our substance and causing every manner of mischief?"

APPA Study of World Markets For Paper and Pulp

A special foreign market study, "Million Dollar Pulp and Paper Markets for U. S.—1958," was issued at the Open Meeting of the Export Committee of APPA. The report analyzes eight world areas and covers individual world markets to which the United States shipped a million dollars or more in pulp and paper products in 1958. It is accompanied by supporting statistical tables which give total values of exports of wood pulp, paper, paperboard and construction paper as well as of paper and board products.

Newsprint Consumption Sets New Record Highs

U. S. newsprint consumption continues to set new records with a January high in 1960. Newspapers reporting to the American Newspaper Publishers Assn. consumed 9.3% more newsprint in January 1960 than in 1959 and 11.9% more than January 1958.



What's the best way to bleach cold caustic pulp...

TOWER or REFINER?

Let Du Pont—the producer of both hydrogen peroxide and sodium peroxide—help you make this key decision

You may save thousands of dollars in capital investment and chemical cost if you make the right choice between bleaching in a refiner or in a tower.

Du Pont has a thorough working knowledge of both systems and, as the producer of both sodium peroxide and hydrogen peroxide, can tell you which peroxide or combination of peroxides is best for you.

Du Pont technical men will work with you and the equipment manufacturer of your choice to obtain the best peroxide bleaching process for your cold caustic pulp. They may recommend refiner bleaching requiring a small investment for peroxide solution make-up equipment with possible brightness increases of up to 20 points . . . or if your operation calls for it, they may recommend tower bleaching. When combined with Du Pont's acidification process and a peroxide treatment, tower bleaching can increase brightness up to 35 points.

Add Du Pont's experience to your own, and you're sure to make the right choice. Call your Du Pont representative; he will be glad to discuss any bleaching problem you may have.

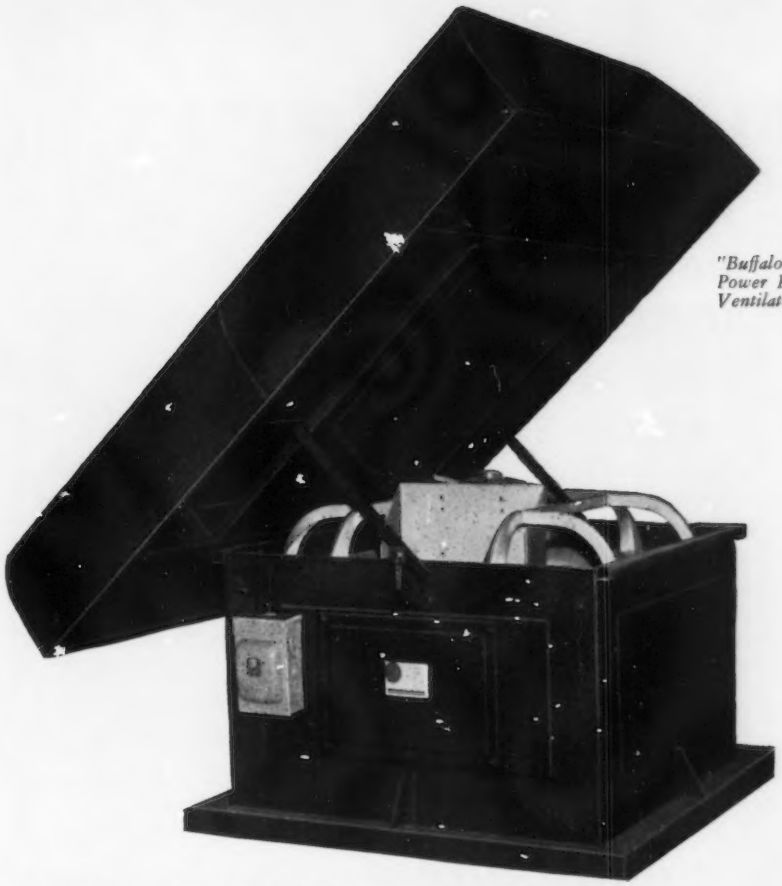
MIDWEST AREA
Call P. E. Kiefer, Chicago, Ill. • INdependence 3-7250
WEST COAST AREA
Call L. W. Blight, Portland, Ore. • CApitol 7-1281
NEW YORK & BOSTON AREA
Call C. R. Lombard, New York, N. Y. • LOngacre 3-6440
SOUTHERN AREA
Call R. W. Hammond, Charlotte, N. C. • FRanklin 5-5561

DU PONT PEROXIDES

SOLOZONE® sodium peroxide • **ALBONE®** hydrogen peroxide
for better bleaching of groundwood—sulfite—kraft—cold soda

DU PONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

ELECTROCHEMICALS DEPARTMENT, E. I. DU PONT DE NEMOURS & CO. (INC.), WILMINGTON 98, DELAWARE



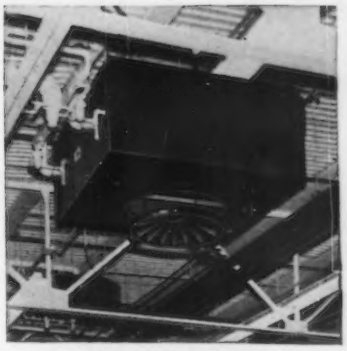
"Buffalo" Sky-Vent Power Roof Ventilators

- **Low Initial Cost**
- **Easy to Install**
- **Economical to Operate**
- **Efficient, Dependable**

"BUFFALO" VENTILATION "PACKAGES" ... MOST FEASIBLE WAY TO:

1. Exhaust Stale Air

"Buffalo" Sky-Vent Power Roof Ventilators deliver high capacity, low cost ventilation for large areas where wall locations cannot be utilized — where duct work would be too costly — where ducting would take up valuable production space — where ducting would interfere with layout modifications for model change-overs. Shipped as ready-to-install units, they save time and money. High volumes (up to 250,000 cfm) permit a minimum number of roof installations, thus reducing costs. Ruggedly built — with heavy-gauge stacks — integral flanged curbs — moisture-proof, hurricane-proof, corrosion-resistant. Can be furnished for either exhaust or supply applications. High performance "Buffalo" Fans insure peak efficiency air handling. Write for Bulletin FM-2345.



"Buffalo" Make-Up Air Unit

Available with face and by-pass and/or return-air dampers, filters, non-freeze heating coils, propeller fan and motor, reversible wheels for supplemental summer exhaust.

2. Put Back Fresh Conditioned Air

"Buffalo" Make-up Air Units provide economical, high capacity heated and/or filtered air to replace losses through exhaust ventilation. Available for installations below roof opening of Style H Sky Vent — or for side wall mounting inside or outside plant. Easy-to-install; no need for costly, space-consuming ducts. Installation in new or existing buildings allows complete flexibility, long life, minimum maintenance. Write for Bulletin FM-2345.

"Buffalo" BUFFALO FORGE COMPANY
Buffalo, N. Y.
Buffalo Pumps Division, Buffalo, N. Y.
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING • FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

if you make

MAGAZINE PAPER
PAPER PLATES
HARD BOARD
LINER
INSULATING BOARD
CARTON STOCK

Bilt-Wax®

tested wax emulsions

can improve your products

details on request

R. T. VANDERBILT CO., INC.

230 Park Avenue, New York 17, N. Y.

PAPER TRADE JOURNAL

WEEK OF FEBRUARY 29, 1960

ENCLOSED TRAIN SHED at Fraser Paper Ltd., Madawaska, covers six railroad sidings, each with space for five freight cars. Along the left side can be seen the loading platform accommodating ten trailer trucks.

Additions to Fraser Paper Mill At Madawaska Near Completion

Major additions to the bond paper mill of Fraser Paper, Ltd., Madawaska, Me., are nearing completion. The facilities for finishing, storing, and shipping paper are being doubled and the machine room is being expanded to provide space for two paper machines.

The addition to the machine room is practically completed. One machine with a width of 234 inches is on order and some parts are now on hand and being erected in the new building. A second machine will be ordered when conditions are favorable.

The finishing and storage area is enlarged with a new building having a main floor 42,000 sq. ft. in area and a basement of 31,000 sq. ft. Extra lighting is provided at one end where paper will be examined before trimming and packaging. Conveyors and other equipment will be installed in the near future. Attached to the new finishing and storage room is a new completely enclosed train shed.

Crossett Now Making Bleached Kraft Paper

Crossett Paper Mills stocks standard sizes of bleached Leatherneck Butchers for merchant customers and is offering full bleached wrapping paper in machine trim runs. The new full bleached Leatherneck converting papers are offered in a variety of grades, including garment bag, variety bag and standard converting.

$60 Million Mill Planned for Arkansas

Anglo-Canadian Pulp & Paper Mills has announced plans for a $60 million newsprint mill near Texarkana, Ark. Announcement was made jointly by the governor of Arkansas and E. M. Little of Anglo-Canadian. Mr. Little is chairman of the board of the new company which will build the mill, Anglo-Southern Paper Corp.

Anglo-Canadian operates a large newsprint mill in Quebec City and its wholly owned Dryden Paper Co. has a kraft pulp and paper mill at Dryden, Ont. It is associated with Gaspesia Sulphite Co. with a sulphite pulp mill at Chandler, Que., and Anglo Newfoundland Development Co. with a large newsprint mill at Grand Falls, Newfoundland.

Thurso Plans Expansion

The Thurso Pulp & Paper Co., Thurso, Que., has decided to proceed with a $4 million expansion. Announcement was made by Quebec Premier Antonio Barrette following a meeting with Paul Bourget, president of the firm.

Western Plywood Abandons Pulp Mill Plans

Western Plywood Co., Ltd., has dropped its plan to build a pulp mill at Quesnel, B. C.

Western Plywood applied for a tree farm license in the Quesnel Lake area in 1953 and in 1955 announced it would build a $20 million pulp mill at Quesnel once the license was granted.

Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending February 13, 1960, at 96.4 per cent compared with 97.6 per cent, revised for the preceding week. The ratio was 88.1 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending February 13, 1960, at 96 per cent, compared with 96 per cent for the preceding week and 94 per cent for the corresponding week a year ago.

(Detailed statistics on page 42)

1960 Newsprint Statistics Show January Gain

Production of newsprint in North America during January 1960 amounted to 706,856 tons and was 7.6 per cent above the year-ago volume. Shipments totaled 660,810 tons in January 1960 and were 6.4 per cent greater than shipments in the same month in 1959. According to the Newsprint Service Bureau, output in the United States of 179,416 tons represented an all-time monthly high while shipments totaled 167,049 tons, and respective gains over January 1959 amounted to 8.3 per cent and 7.7 per cent.

Canadian production amounted to 527,440 tons while shipments totaled 493,761 tons, which represents increases from January 1959 of 7.4 per cent and 6.0 per cent.

Production of newsprint paper in North America in 1959 reached a record peak of 8,358,303 tons. This was 504,954 tons or 6.4 per cent greater than in 1958 and 1.7 per cent above the former high of 1957. Output of United States mills in 1959 totaled 1,964,131 tons—an all-time annual peak—and was 206,335 tons or 11.7 per cent more than in 1958 and 7.6 per cent above the former record year of 1957. Canadian production amounted to 6,394,172 tons and was 298,619 tons or 4.9 per cent greater than in 1958, however. it fell short of the all-time high volume in 1956 by 1.2 per cent.

North American manufacturers' stocks on January 31, 1960, aggregated 217,741 tons compared with 171,695 tons on the last day of the preceding month and 236,985 tons at the end of January 1959.

Deerfield Glassine to Erect New Mill

PAPER TRADE JOURNAL

WE ARE RELEASING THE FOLLOWING:

DEERFIELD GLASSINE CO., INC., OF MONROE BRIDGE, MASS., HAS ANNOUNCED THAT IT PLANS TO ERECT A GLASSINE PAPER MILL NEAR AUGUSTA, GA., ADJACENT TO THE NEW MILL OF CONTINENTAL CAN CO. PRESENTLY UNDER CONSTRUCTION.

AFTER SOME YEARS OF DEVELOPMENT, DEERFIELD HAS FOUND IT POSSIBLE TO INCREASE THE USE OF SOUTHERN KRAFT PULP IN ITS PRODUCT. SUCH EXCELLENT RESULTS WERE OBTAINED THAT IT WAS DECIDED TO INVESTIGATE VARIOUS LOCATIONS IN THE SOUTH. SINCE CONTINENTAL WILL BE IN A POSITION TO FURNISH ALL OF THE DIFFERENT KRAFT GRADES NECESSARY, IT WAS FINALLY DECIDED TO LOCATE ADJACENT TO THEIR PULP MILL.

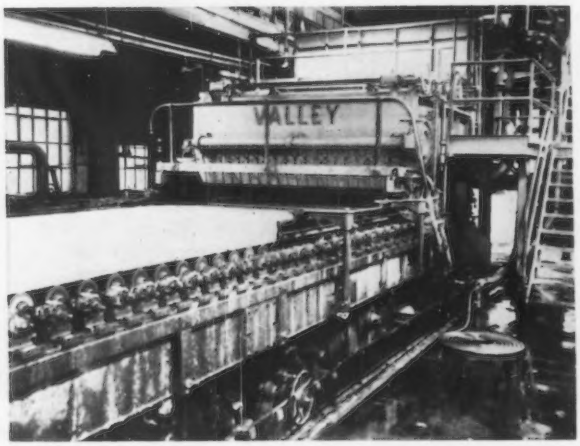
THIS WILL BE THE FIRST GLASSINE, GREASEPROOF AND LIGHT WEIGHTS SPECIALTY MILL IN THE SOUTH, WILL GIVE DEERFIELD MUCH NEEDED ADDITIONAL CAPACITY, AND WILL BE IDEALLY SUITED TO SERVE THE RAPIDLY GROWING SOUTHERN AND SOUTHWESTERN MARKET FOR THESE PAPERS. CONSTRUCTION OF THE NEW MILL IS EXPECTED TO START SOON AND TARGET DATE FOR STARTING UP IS EARLY 1961.

IN ADDITION TO SLUSH KRAFT PULPS THAT WILL BE DELIVERED THROUGH PIPELINE TO THE NEW MILL, CONTINENTAL CAN WILL ALSO SUPPLY WATER AND OTHER SERVICES FOR THE DEERFIELD FACILITY. DEERFIELD CURRENTLY OPERATES A GLASSINE AND GREASEPROOF PAPER MILL IN QUEBEC CITY, PQ., UNDER A SIMILAR ARRANGEMENT WITH ANGLO CANADIAN PULP AND PAPER MILLS, LTD.

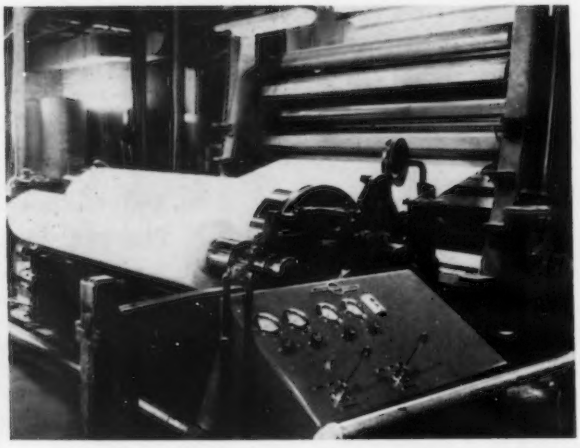
IT IS PLANNED TO OPERATE THE NEW MILL AS A WHOLLY OWNED DIVISION OF THE PARENT CO.

DEERFIELD GLASSINE CO.

Recent Machine Improvements at Chase Bag Co., Chagrin Falls, Ohio, Paper Mill



NEW HEADBOX manufactured by Valley Iron Works has been installed at Chase Bag Chagrin Falls, mill.



A NEW REEL on one of the paper machines at Chase Bag Co. mill was supplied by Beloit Iron Works.

Coosa River Newsprint Co.'s Tenth Anniversary Celebration

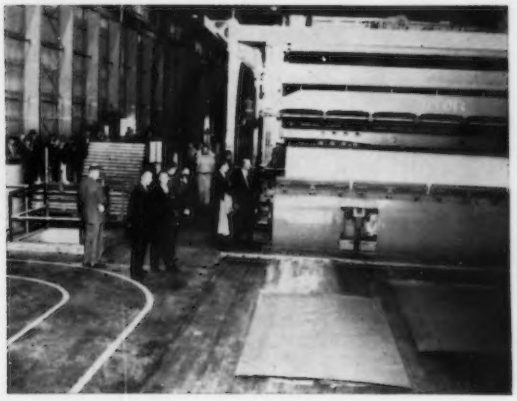
Messrs. Kimberly, Mahler and Wahlstedt.

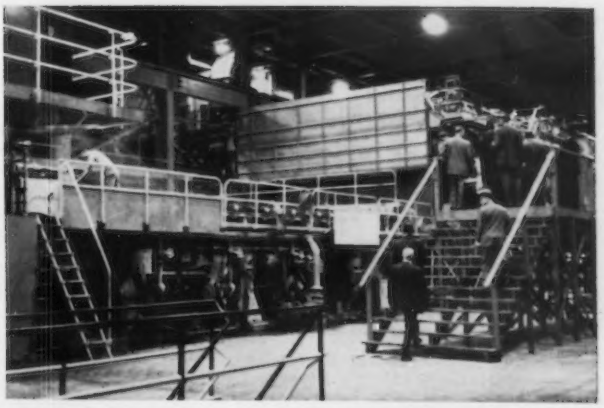
Passengers prepare to board special train to Coosa Pines.

The Flakt dryer and the Kimberly-Clark products display.

Woodlands car dispatches bus through the plantation.

Guests observe operations at No. 3 newsprint machine dry end.





Guests observe sheet formation on No. 3 from special platform.

PAPER PEOPLE

Frank Halvonik

R. R. Whiteman

Monadnock Names Halvonik To New Post

Monadnock Paper Mills, Inc., Bennington, N. H., has appointed Frank Halvonik director of new product development & technical sales.

A graduate of the University of Pittsburgh in 1950, with post graduate chemical engineering work at Pennsylvania State University, Mr. Halvonik joined Monadnock in August 1959. Previous paper mill positions were with P. H. Glatfelter and D. M. Bare Paper Co. He held respective positions as group leader paper technical service and also coating supervisor, stream pollution engineer and assistant technical superintendent (paper section).

Prior to entry into the paper field, Mr. Halvonik was employed by Brockway Glass Co., Brockway, Pa., as process design chemical engineer.

Brown Names Reilly Labor Relations Director

Appointment of Patrick J. Reilly as director of labor relations for Brown Co. has been announced. Mr. Reilly replaces Alfred B. Clark, who resigned some time ago.

Mr. Reilly, who joined Brown's labor relations department in May 1958, was New England regional personnel director and later, Midwest labor relations representative for St. Regis Paper Co. He also served for five years as senior personnel technician for the Port of New York Authority.

Blake, Moffit & Towne, Elects Executive V-P

Rolland R. Whiteman has been elected to the newly created position of executive vice president of Blake, Moffit & Towne, it has been announced at San Francisco headquarters by Arthur W. Towne, president of this pioneer Pacific Coast paper distributing organization.

Mr. Whiteman brings to his new position an extensive background of sales executive experience gained as BM&T's sales manager, Los Angeles division, general sales manager at San Francisco headquarters and, more recently, vice president in charge of company sales throughout its coast-wide chain of 34 divisions and district warehouses.

Strathmore Paper Promotes Two on Sales Staff

Strathmore Paper Co. of West Springfield, Mass., has announced two promotions in its sales division. Frederick S. Van Voorhis, Jr., has been appointed manager of advertising and sales promotion. He succeeds Robert B. Clark, Jr., who had been advanced to the new position of manager of printing paper sales last year, but had temporarily continued in charge of the company's advertising, sales promotion and public relations activities.

John G. Gallup has been promoted to the position of assistant manager of product development. Mr. Gallup was formerly assistant to the manager of advertising and sales promotion at Strathmore and also assistant manager of advertising and sales promotion for the Old Colony Envelope Co. of Westfield. Old Colony is associated with Strathmore. In his new position, Mr. Gallup will assist Roy F. Arnold in product and market research on Strathmore's printing papers.

Madden Joins Brightwater As Vice President

Russell L. Madden, Sr., former president of the Vally Paper Co., has been named a vice president of the Brightwater Paper Co. of Adams, Mass., and will work out of the company's New York office at 11 West 42nd St.

Mr. Madden, who was president of Valley Paper for 19 years prior to his resignation last October, is the second Holyoke paper mill official to join Brightwater. John G. McNaught, former vice president of the American Writing Paper Corp., became associated with Brightwater as a vice president and sales manager in November of 1958.

Both Mr. Madden and Mr. McNaught were affiliated at AWP previously having come to Holyoke in 1923 to join that company. Mr. Madden left AWP in 1941 and Mr. McNaught in 1958.

Last year Mr. Madden marked half a century in the paper trade and during his career has held many executive posts. Prior to becoming president of Valley Paper he was vice president of the Mohawk Paper Co. of Cohoes, N. Y.

Johnston Joins Dexter As Marketing Director

Allan Q. Johnston has been named to the new post of marketing director of C. H. Dexter & Sons, Inc., Windsor Locks, Conn.

Mr. Johnston, formerly assistant to the vice president of industrial marketing of Scott Paper Co., Chester, Pa., will coordinate Dexter's marketing activities, especially those involving plans for growth and diversification. The company recently entered the textile field with "Dextex," a new wash-and-wear interlining produced by methods adapted from paper making technology.

The new marketing director was with Scott for 12 years. He received a B.S. in business administration from Boston University and has completed specialized management training at Harvard Business School.

"WET STRENGTH PAPER and CELLOPHANE is no longer a headache when it gets in our stock, now that we have Jonsson Screens"
"SHIVES and CHIPS do not get broken up and into the finished paper when we use Jonsson Screens"
"Trouble makers like PAPER CLIPS and RUBBER BANDS get whisked out of harm's way for good with Jonsson Screens"
"For taking out KNOTS there's 'notting' like a Bird-Jonsson Screen"
"In our straw stock KNUCKLES and COCKLE BURRS hold no terrors for us. Jonsson Screens take care of that"
"The bane of our existence used to be TAILINGS DIRT from other screens. Jonsson Screens solved that problem"

Right — gentlemen! The Bird-Jonsson Screen has the precisely controlled, super-effective screening action that delivers all of the good, clean fibres but takes out all these different impurities *fast* and *complete*. Ask for layouts and estimates.

BIRD MACHINE COMPANY, South Walpole, Mass.

Regional Offices: ATLANTA 9, GEORGIA • EVANSTON, ILLINOIS • PORTLAND, OREGON

Canadian Manufacturers of Bird Machinery: CANADIAN INGERSOLL-RAND COMPANY, Ltd., Montreal

BIRD-JONSSON SCREENS

C. W. Schneiderhan

Mead Corp. Names Market Research Director

Charles W. Schneiderhan has been named assistant director of market research for The Mead Corp. In this post Mr. Schneiderhan will assume certain responsibilities in the overall direction of the department in addition to his present staff functions which include determining present markets, investigating markets for new products, and preparing data for the sales departments.

Before joining Mead in 1957, he gained marketing experience while working for seven years as a research analyst for an insurance firm, senior market analyst for an abrasive company, and market research manager for a paper mnufacturer. He is a 1949 graduate of Bucknell University and received his M.S. from the Columbia University Graduate School of Business in 1950.

Scott Paper Advances Seven To New Posts

Promotion of Henry S. Godshall, Jr., and D. J. Dughie to new management positions have been announced by Scott Paper Co.

Mr. Godshall has been named to the newly created position of mill manager at the company's affiliate in Mexico City, Cia. Compania Industrial de San Cristobal. Mr. Dughie will succeed Mr. Godshall as manager of the Marinette Paper Co. mill in Marinette, Wis.

Since joining Scott in 1936, Mr. Godshall has served in a variety of engineering and management capacities including that of administrative assistant to the vice president in charge of the West Coast operation. He assumed management of the Marinette mill in 1956.

Mr. Dughie joined Scott in 1939. He has since served in a variety of finishing, production and quality control responsibilities. In 1956, he attended the 29th session of the Advanced Management Program of the Graduate School of Business Administration at Harvard University. Most recently, he has served as manager of industrial engineering at the company's headquarters in Chester.

Scott also announced other promotions affecting management and procurement responsibilities.

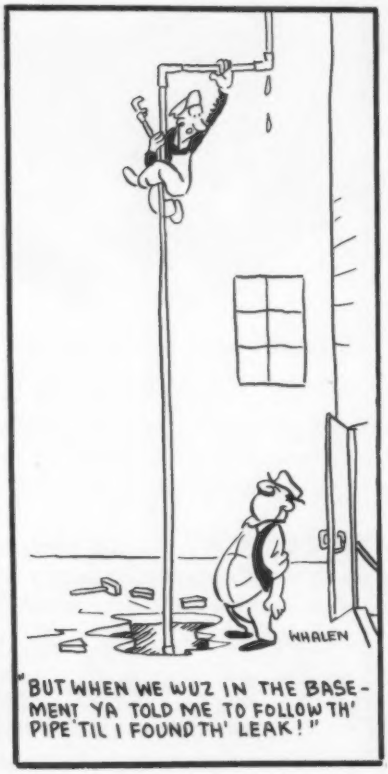
A. J. Haug, formerly paper mill manager of the Everett, Wash., mill, has been named manager — production services in the corporate staff group at Chester, Pa. Joining Scott in 1947, Mr. Haug progressed through a series of technical posts and has served in his most recent capacity for the past two years.

R. E. March, formerly plant manager at the Empire mill of the Coos Bay Pulp Corp., a Scott subsidiary, has been named paper mill manager at Everett. Mr. March joined Scott in 1946 as an engineer and has been at the Empire mill since 1957.

J. Howard Schneider, formerly procurement manager of the West Coast Division, has been named plant manager at the Empire mill. Since joining Scott in 1948, Mr. Schneider has gained broad accounting and procurement experience and has served in his most recent post since 1956.

Hobart L. Swan, formerly manager — packaging procurement department at staff headquarters at Chester, Pa., has been promoted to the position of procurement manager of the West Coast Division. Mr. Swan joined Scott in 1947 as an engineering trainee and since 1951 has served in a variety of capacities.

Harry H. Reese, formerly purchasing agent at Scott's subsidiary mill at Fort Edward, N. Y., has been promoted to the position of manager—packaging procurement department in Chester. Mr. Reese joined Scott in 1946 as an accountant and following several procurement assignments was named to his most recent post in Fort Edward in 1955.



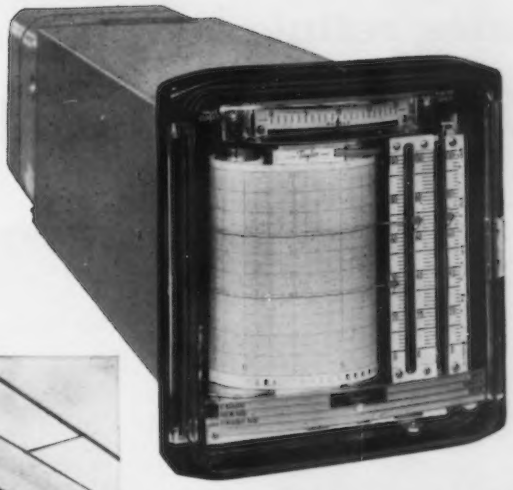
RALPH H. CUTTING, (left) president, Keyes Fibre Co., Waterville, Me., receiving a framed enlarged copy of the resolution passed unanimously by the joint special session of the Maine legislature January 9 in tribute to the paper and pulp industry; Joseph T. Edgar, speaker of the House; John H. Reed, Governor of Maine; and Earle M. Hillman, president of the Senate. The resolution, hailed the outstanding value of the paper and pulp industry to the state's economy. The framed resolution will be hung permanently in the "Paper City Maine" exhibit trailer, to be exhibited in Maine communities.

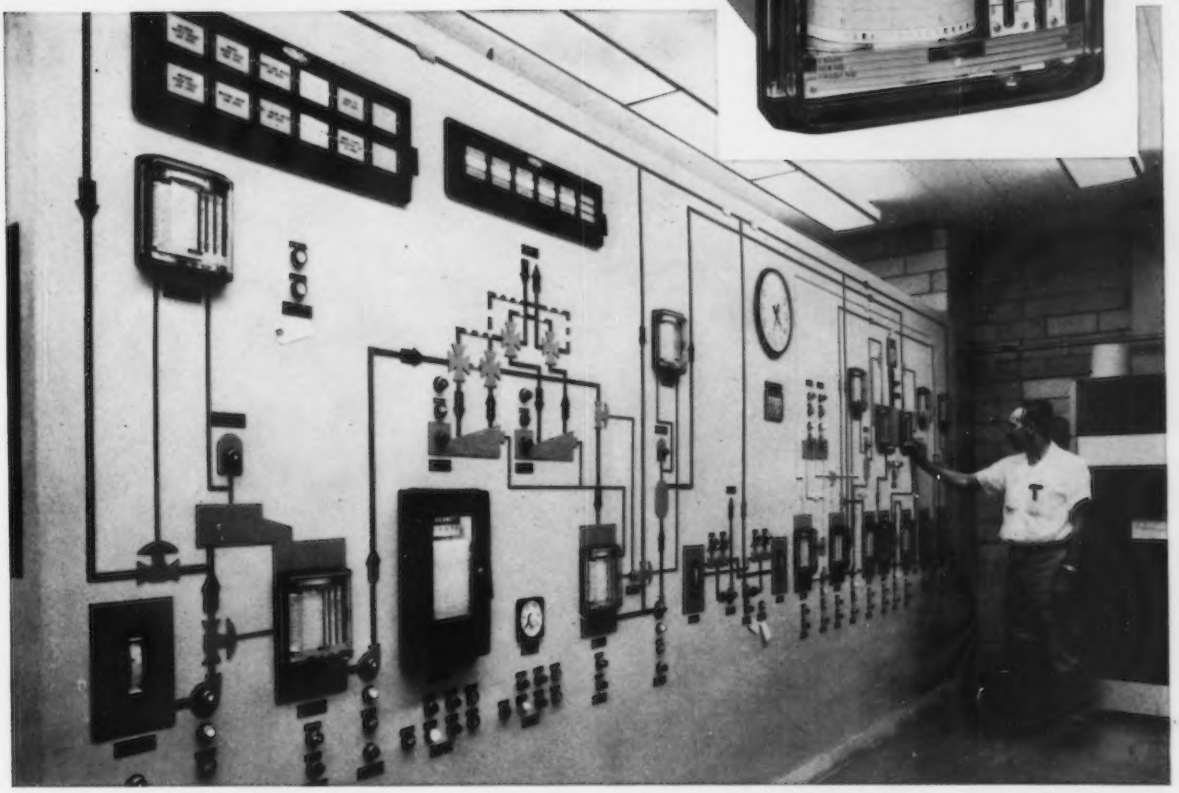
George Joins Consolidated Public Relations Staff

Terry George has joined the public relations department of Consolidated Water Power & Paper Co.

Mr. George has had five years of varied newspaper experience, having been employed by the Mantiowoc (Wisconsin) Herald Times, Buffalo (New York) Courier Express, and as a Milwaukee Journal correspondent. He has recently served on the public relations staff of Cooperative Grange League Federation Exchange, Inc., Ithaca, N. Y. A native of Michigan, he received a B.A. degree in Journalism from Michigan State University in 1952.

"No other recorder puts so many features in so little panel space . . ."





Stock preparation graphic control panel at Ecusta uses many TRANSCOPE Plug-in Recorders and Controllers.

TRANSCOPE* Recorders used enthusiastically at Ecusta

Ecusta Paper Division of Olin Mathieson Chemical Corp., Pisgah Forest, N. C., was the first paper mill to make extensive use of the advantages of the Taylor TRANSCOPE Recorders and Controllers. These outstanding instruments play an important part in automating its new No. 10 Machine and its stock preparation system.

Features of the 90-J Transcope Recorder include:

Servo-Operated Pens with 150 times greater power, assuring unprecedented accuracy of records.

Optional Front-of-Panel Settings to let you make adjustments easier, quicker and better . . . from the front of panel . . . while recording!

Stays on Automatic Control while the plug-in recorder slide is removed for inspection, yet providing continuous fully automatic control.

Complete Indicating Control Station while recorder is removed. Horizontal gage at top of recorder will show either process variable or air output valve, as desired.

Receives Three Variables to be recorded or indicated; has a Set Point Transmitter; Process Alarms with Memory Pointers; Automatic-to-Manual switching; Cascade or Process-output Switch, and many other features . . . all in one compact case.

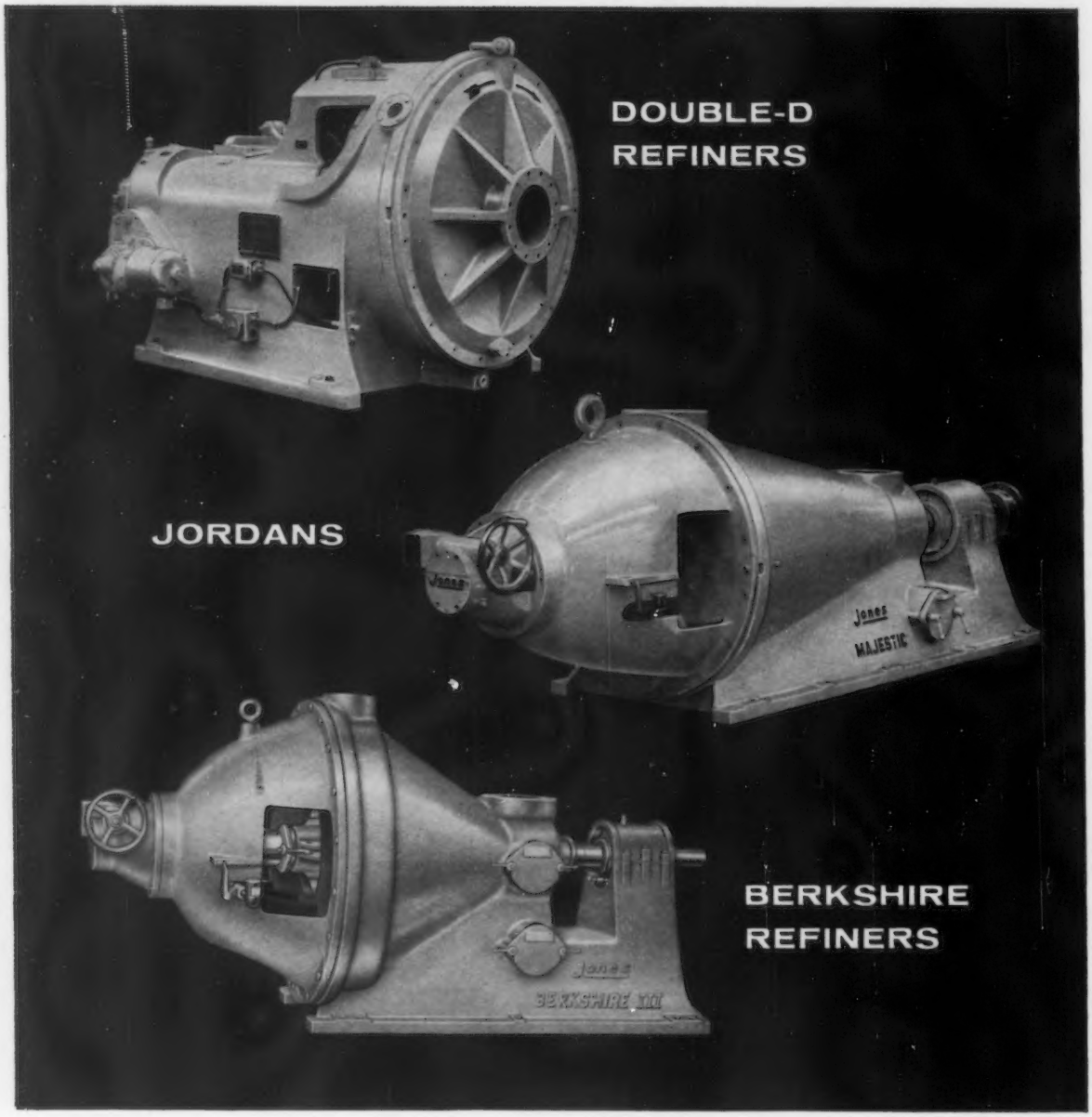
See your Taylor Field Engineer, or write for **Catalog 98286.** Taylor Instrument Companies, Rochester 1, New York, or Toronto, Ontario.

*Reg. U.S. Pat. Off.

Taylor Instruments **MEAN ACCURACY FIRST**

Jones refiners

CHOICE OF THE NATION'S



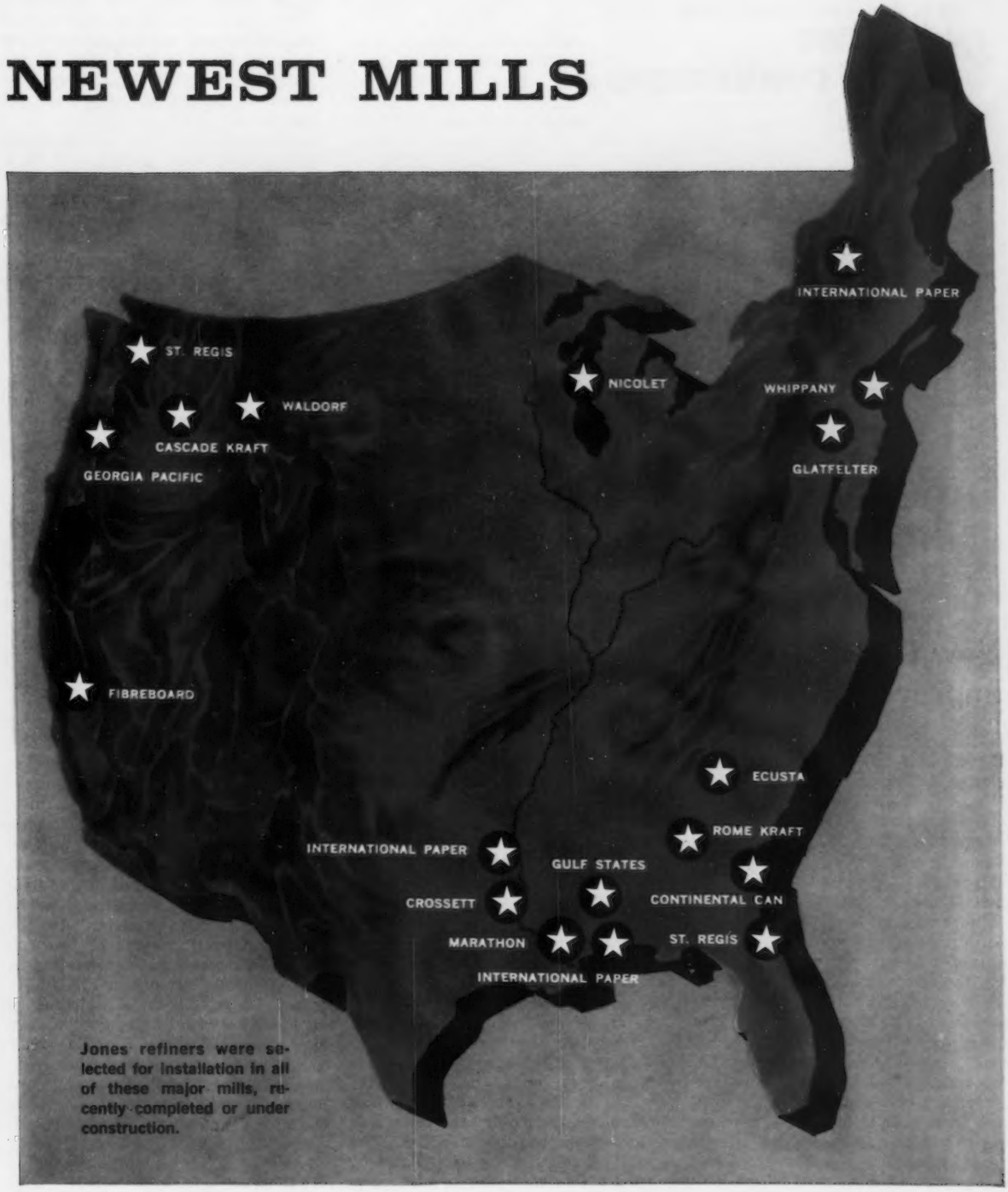
Canadian Associates:
The Alexander Fleck Ltd.
75 Spencer St., Ottawa

E. D. JONES CORP. PITTSFIELD, MASS. member BELOIT group

Jones

PULP MILL EQUIPMENT AND
STOCK PREPARATION MACHINERY

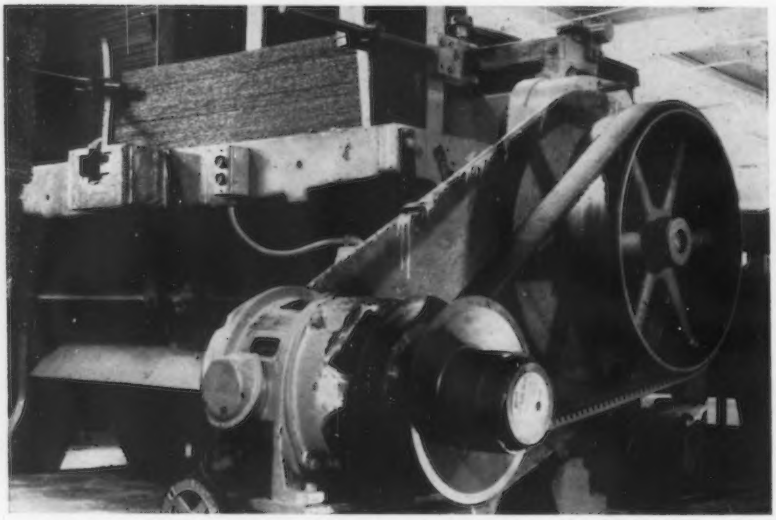
NEWEST MILLS



Check the record. Wherever you find new mills — mills designed and built for top performance and maximum efficiency — you're likely to find Jones refiners. There's a type and size to fit every requirement — each precision designed and custom built to fit individual mill requirements. If you are thinking of modernizing, it will pay you to include Jones in your plans.

PJT

NEWS OF CONVERTERS



New Drive Cuts Maintenance, Improves Operation of Partition Slotter

Obsolescence was the problem with the variable-speed drive on partition slotter at Superior Paper Products Div., St. Regis Paper Co. The machine was used to trim and slot corrugated board up to 20 inches by 60 inches in size for use as partitions in shipping cartons. Among the various maintenance difficulties on the machine was the fact that new belts had to be made specially, and required long advance notice in ordering replacements.

Charles Malehorn, maintenance supervisor of the Mount Wolf, Pa., firm, found that a complete new drive could be obtained for very little more than the specially made belting. Furthermore, the belt could be expected to last from four to five years, whereas the old belts had given out after a year and a half. And replacement belts would be more readily available for the new drive which is made by T. B. Wood's Sons.

WIDER SPEED RANGE

The speed range would also be much wider. This is important since the operating speed of the partition slotter must be varied frequently because of the different sizes of the pieces that pass through it. The machine is tended by three girls—two catchers and a feeder. The feeder is also the operator; she starts and stops the machine and regulates the speed according to the convenience and capability of the workers. To this feminine operator, it was important that the speed could be changed easily as well as quickly.

The new drive was installed by Bush-Miller, Inc., York, Pa., industrial distributor. It consists of a driver pulley with 1¼-inch bore for the motor shaft, a belt (section of 2¾ by 21/32 inches) and a flat driven pulley of 21-inch diameter and 6-inch face. Pitch diameter of the driver sheave is adjustable from 4¼ to 12¾ inches by turning the wheel that moves the motor base toward or away from the driven pulley. The speed of the driven pulley can be varied from a minimum of 320 r.p.m. to a maximum of 620 r.p.m. Center-to-center distance of belt varies up to four inches.

OUTPUT VARIES

The motor is a 5-h.p., three-phase, 60-cycle, 220-440-volt motor, operating at 1,150 r.p.m. at full load. Because of the heavy-duty nature of the work and the frequent speed changes, a drive rated for 7½ h.p. at 1,160 r.p.m. was recommended. On an average this machine is able to produce 21,500 cut and slotted pieces of corrugated board in two hours. Its output varies considerably, however, because of the changing work requirements.

Known as an "MS" motion-control drive, it is made in five sizes by T. B. Wood's Sons Co. The drive sheave has one stationary, one movable flange. There are no keys to obstruct the flow of oil. Torsionally resilient rubber keys, located outside the bearing surfaces, permit continuous oil-pumping action of the flange hub on the sleeve. Equal transmission of power by both stationary and moving flanges is provided. This utilizes the full capacity of the belt. Any type of straight-face companion pulley can be used with the "MS" drive sheave.

F. G. Bemis, Jr., Named To New Post

F. G. Bemis, Jr., manager of the Bemis Bro. Bag Co. plant in East Pepperell, Mass., has been appointed director of allied operations for the company.

Mr. Bemis will be succeeded as manager at East Pepperell by Walter I. Rodgers, who has been serving as assistant to the manager. As director of allied operations, Mr. Bemis will move to the general offices in Boston and will be responsible for the operation of the company's Visinet Mill, paper specialty and plastic packaging plants.

Prior to his appointment as manager at East Pepperell more than three years ago, Mr. Bemis served as administrative assistant to the vice president in charge or research and development, and was elected to the board of directors in 1956.

Mr. Rodgers became assistant to the manager at East Pepperell a year ago. He joined the company in 1947 and served in company sales positions until 1957 when he was appointed administrative assistant to the president.

Appleton Coated Paper Elects Officers

Officers for the coming year were elected at the annual meeting of the stockholders and directors of The Appleton Coated Paper Co. held February 12.

The officers are: Richard W. Mahony, president; John P. Reeve, executive vice president; Herman B.

Berge, vice president; Abraham Lewenstein, vice president; Paul E. Truttschel, vice president; William A. Siekman, secretary; Percy C. Menning, treasurer; James R. Barton, assistant treasurer; Fred T. Heinritz, assistant secretary.

W. A. Sickman was elected to serve on the company's seven man board of directors. A graduate of Oklahoma A & M College, he joined the company in 1947. In addition to being secretary, he serves as personnel director, having supervision of employment, safety, training, insurance and health and employee services.

Paul E. Truttschel, a new vice president, is sales manager. A graduate of Marquette University, he was employed for several years in the company's technical department. In 1952 he became associated with the sales department and was appointed sales manager in 1956.

Sherman Frinak was named mill manager, advancing from the post of assistant mill manager, a position he held for several years. He has been employed by the company since 1949. He attended the Lawrence College V-12 Navy program during World War II and is a graduate of the University of California.

N.P.E.A. Elects Gage Secretary

The National Printing Equipment Ass'n., Inc., through its president, E. O. Vandercook of Chicago, has announced the election of Harry L. Gage as its secretary, to succeed the late James E. Bennet. Mr. Gage, who has served this association as its educational advisor since 1953, will also maintain his contacts with graphic arts schools and related professional organizations. Since his retirement in 1947, as a vice president of Mergenthaler Linotype Co. and then a director of N.P.E.A., he has continued the interest in graphic arts training which stems back to his early experience as organizer and first head of the Department of Printing at Carnegie Institute of Technology, 1913-1919.

Nat'l Vulcanized Fibre Names Executive V-P

Roy S. Fisher formerly sales vice president of National Vulcanized Fibre Co., has been named administrative vice president of the Wilmington, Del., company.

In addition to his previous responsibilities in sales area, Mr. Fisher will now be responsible for the industrial relations, order-service, traffic and marketing departments.

Mr. Fisher, a graduate of Pennsylvania State University, has been associated with the vulcanized fiber industry since 1922 when he was with Delaware Hard Fibre Co. He moved to National in 1923 where he served in various home office sales positions before being named Cleveland branch manager in 1931. In 1955 he became national sales manager and in October 1956 was elected vice president and director of sales.

Latex Fibre Names Post Marketing Research Mgr.

Jerome D. Post has been named marketing research manager of Latex Fiber Industries, Inc., a subsidiary of United States Rubber Co. jointly operated with J. P. Lewis Co. at Beaver Falls, N. Y.

In this newly created position, Mr. Post will analyze existing markets for Latex Fiber Industries products —the shoe industry, book covers, gasketing, automotive door paneling and other manufacturers who need

The Pyrazol Fast range of Sandoz Directs is outstanding in fastness to light . . . outstanding in the other important properties as well . . . and is the prime choice in the coloring of nearly all grades of paper, from tissue to cover. For the booklet, complete with illustrations, that tells you all about Pyrazol Fast—write, wire, or 'phone: SANDOZ, INC. 61-63 Van Dam St., New York 13, New York. ALgonquin 5-1700. District Offices: Charlotte, Cincinnati, Fair Lawn, N. J., Hudson, Mass., Los Angeles, Philadelphia.

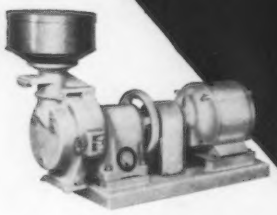
SANDOZ
THINKS AHEAD WITH PAPER
SANDOZ

leather-like materials — and study ways of increasing sales in related and non-related markets.

Latex Fiber Industries has produced a wide variety of latex-impregnated or bonded-fiber materials, employed as fabric or leather replacements, since the firm's founding in 1932.

Mr. Post has been associated with this industry since leaving the University of New Hampshire in 1949. A native of Boston, Mass., most recently he has been New England sales representative for Latex Fiber Industries with headquarters in that city.

VERSATILE LABORATORY MILL



Here's a disc mill for your laboratory... to do miscellaneous grinding jobs of either wet or dry material; to refine cooked chips and knotter or screen rejects; to fluff dry pulp samples.

For details and bulletin on the Bauer Laboratory Mill, write us or call FAirfax 3-5501.

The Bauer Bros. Co.

HEADQUARTERS FOR PROGRESS

1758 Sheridan Ave. • Springfield, Ohio

St. Regis Chicago Plant Begins Operations

The new Chicago corrugated packaging materials plant of St. Regis Paper Co. has begun operations, the first manufacturing enterprise to get under way in the Bridgeview Industrial District.

Robert S. Prentice, general manager of the 165,000-square foot, 16-acre plant, said that the plant is undergoing finishing touches and landscaping. Full production is anticipated within a few weeks.

The one-story steel and brick manufacturing building, with adjoining two-story office structure, represents a three-fold expansion of capacity over the former plant, Mr. Prentice said.

The plant, previously known as the Ajax Box Division of St. Regis, vacated a building at 2210 S. Union Ave., which Ajax had occupied since 1928, to make way for expressway construction.

The Bridgeview Industrial District, developed by New York Central through its Indiana Harbor Belt affiliate, is situated between 68th and 95th Streets, west of Harlem, on Chicago's southwest perimeter. The St. Regis corrugated plant is located at 7701 W. 79th St.

The new plant has a designed capacity of 35,000 tons of corrugated product annually from a new 85-inch corrugator and other modern equipment. Some 200 men and women will be employed.

St. Regis operations are integrated from trees to finished containers. The Chicago corrugated plant is supplied with paperboard from St. Regis mills, including the Seminole Chief, one of the fastest kraft machines, located at the Jacksonville, Fla., mill. Other kraft mills are at Pensacola, Fla., and Tacoma, Wash.

St. Regis Paper Co., which has several other operations in the Chicago area, also is completing a new corrugated packaging plant at Dubuque, Ia., with plans also to build there a new folding carton and set-up box plant.

The St. Regis Crowell Carton Division, Marshall, Mich., also is undergoing its third expansion program.

The St. Regis Container Division operates 36 rigid container plants, in addition to the company's several other units that make multiwall paper bags and a wide range of packaging specialties.

National Blank Book Opens Temporary Plant in L.A.

The National Blank Book Co., manufacturer of school and business stationery items in Holyoke, Mass., and Chicago, is expanding to Los Angeles, Calif., and will start production this month in temporary quarters, it was announced at the firm's recent stockholders' meeting in Holyoke.

The company plans a one-story structure on a 2½-acre site off the Santa Anna Freeway about 10 minutes from downtown Los Angeles, to be occupied in June. The plant, with 39,000 square feet of floor space, will manufacture school fillers, wire-bound units for students and ring binders for school and business trade.

Elected to the board of directors was F. Stanley Schade, director of engineering and development at the Holyoke plant. Re-elected were John C. Baker, Paul B. Buckwalter, John M. K. Davis, Ray M. Evans, Alton B. Hughes, Edward McSweeney, Herbert S. Towne and W. Brewster Towne.

Officers re-elected were: Richard P. Towne, president; Paul B. Buckwalter, executive vice president; Richard M. Weiser, vice president and clerk of corporation, and Alton B. Hughes, treasurer.

Alvin H. Johnson & Co.

INCORPORATED

Consulting and Designing Paper Mill Engineers

415 LEXINGTON AVENUE NEW YORK 17, N. Y.

PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

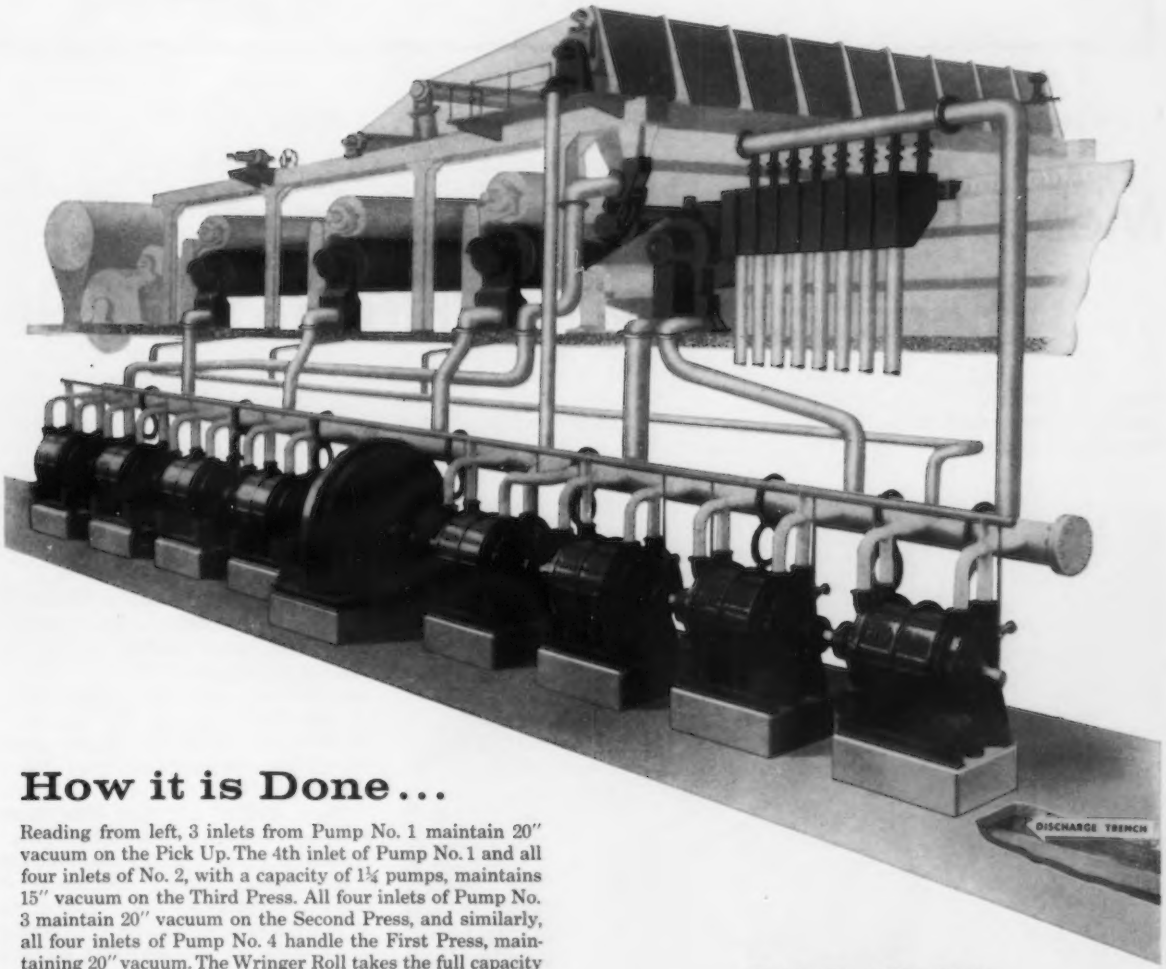
REPORTS APPRAISALS ESTIMATES AND SURVEYS

PAPER TRADE JOURNAL is always mailed on Friday at East Stroudsburg, Pa. If you feel that there is undue delay in receiving your copies, we suggest that you write to your local postmaster with a copy to S. E. Marsh, assistant postmaster at East Stroudsburg. If you will also send a copy of your complaint to us this will keep us posted on areas of poor service.

NOW-

Nash Vacuum Pumps of one size, driven if desired, by a single motor, will handle all of the varied vacuum and capacity requirements of an entire Paper Machine.

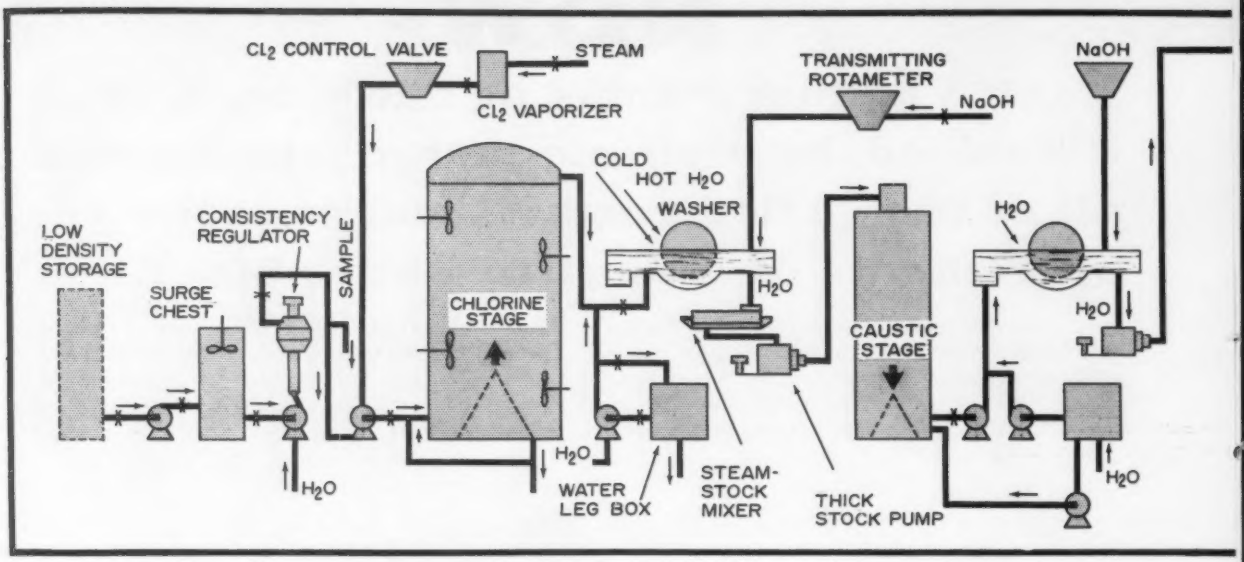
Designed by Nash especially for Paper Mill service, the new 5308 vacuum pump has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce the variety of capacities and vacuums required by the various functions of a paper machine. These may be varied at will. Great simplicity of operation, and economy of maintenance results. The enclosed discharge trench makes possible a comparatively silent installation and permits easy and economical water recovery.



How it is Done...

Reading from left, 3 inlets from Pump No. 1 maintain 20" vacuum on the Pick Up. The 4th inlet of Pump No. 1 and all four inlets of No. 2, with a capacity of 1¼ pumps, maintains 15" vacuum on the Third Press. All four inlets of Pump No. 3 maintain 20" vacuum on the Second Press, and similarly, all four inlets of Pump No. 4 handle the First Press, maintaining 20" vacuum. The Wringer Roll takes the full capacity of Pump No. 5, requiring 10" vacuum. The High Vacuum Couch Box takes a pump and a half, 4 inlets of Pump No. 6, and two inlets of Pump No. 7, maintaining 20" vacuum. The remaining two inlets of Pump No. 7 maintain 10" vacuum on the Low Vacuum Couch Box. Only one inlet of Pump No. 8 is required to handle the Felt Conditioners at 10" and the remaining three inlets of Pump No. 8 handily maintain 10" vacuum on the Wire Boxes.

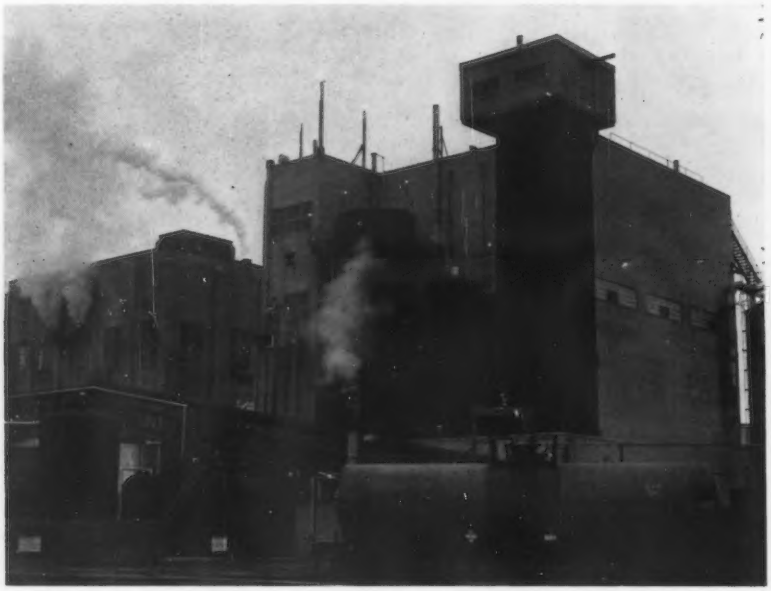
NASH
ENGINEERING COMPANY
South Norwalk, Connecticut



In an entirely new four-stage plant at Chillicothe, Ohio . . .

Mead Now Bleaches Hardwood Soda Pulp With Chlorine Dioxide

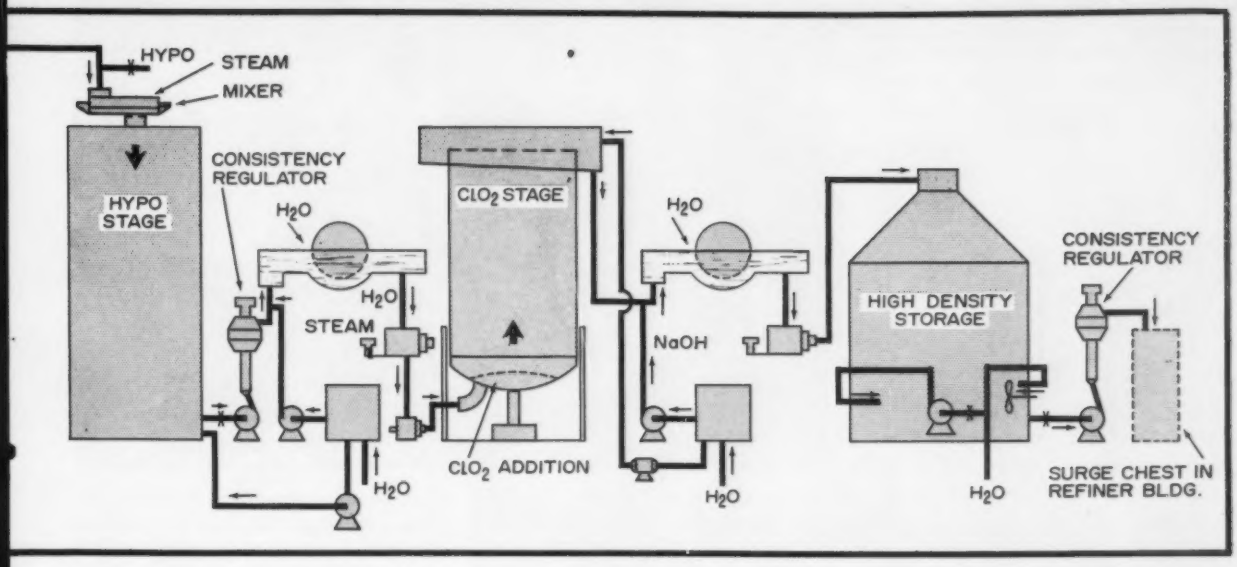
Ernest F. Barker,
Special Correspondent,
Paper Trade Journal



West side of new bleach plant, showing (l-r) chlorination tower with two of its circulators, caustic tower, and hypo tower with its enclosed mixer.

The Mead Corp. has started up an entirely new, four-stage bleach plant at its Chillicothe, Ohio, division. Under construction for more than a year, the new plant began bleaching of soda pulps with chlorine dioxide last September. Initial production was so satisfactory that the paper mill was able to use "the first pound of pulp from the new bleach plant," according to Booker Bunch, assistant production manager, pulp and chemicals.

Mead erected the new four-stage bleach plant to "improve quality, achieve higher brightnesses and increase capacity; with emphasis on higher brightness." These objectives have been met satisfactorily. Mead's soda pulp is now delivered to the paper mill in an 86 to 88 GE brightness range, where the old, three-stage bleach plant was only able to develop an 80 to 82 brightness range. Shrinkage was originally estimated at 6 per cent by the plant's designers but this figure has proven high since start-up. Actual shrinkage ap-



pears now to fall into a three to four per cent range.

All plant construction and engineering work was handled by Mead personnel. Percy Fuller, Mead's chief project engineer, was responsible for engineering. George Sheets and Booker Bunch collaborated on plant design. Mr. Sheets, who was division manager at the time the bleach plant was built and designed, is now managing director of the Mead Research Laboratories. The Mead Research Laboratories division performed exhaustive studies with regard to the chemical engineering aspects of the process, including such details as flow, retention time, chemistry, etc.

Highlights

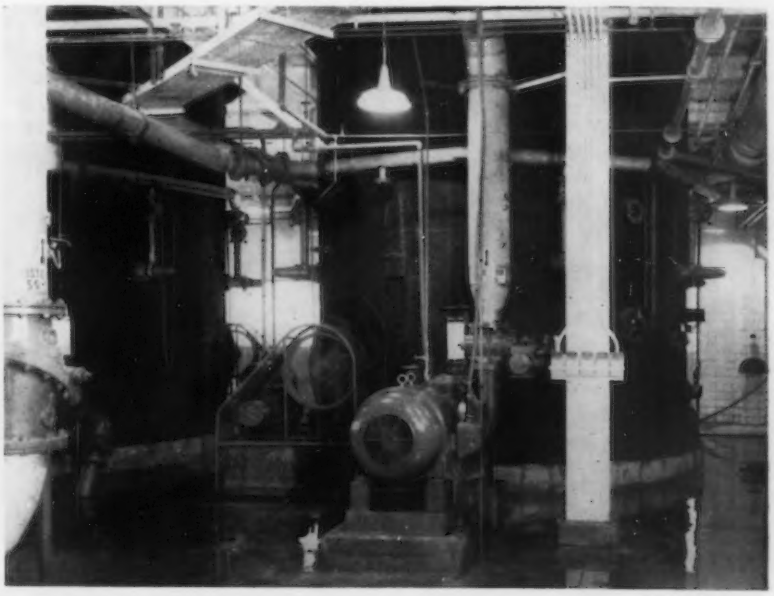
The new bleach plant uses the following four-stage bleaching sequence: Chlorination — Caustic — Calcium Hypochlorite — Chlorine Dioxide. The pulp is a modified hardwood soda, produced from hardwoods native to the area (except walnut) including oak, elm, birch, beech, maple and poplar.

The chlorination stage is carried on at low density. The remaining three stages handle the pulp at high density. The caustic and hypochlorite are downflow and the chlorine and chlorine dioxide are upflow stages. Principal equipment supplier was Improved Machinery Co. with the exception of the chlorine dioxide installation, which is Kamyr and supplied by Sandy-Hill.

Most conventional multi-stage bleach plants drop pulp from the washers and mixers into the towers, but here Mead departed from convention by pumping to the tops of the caustic extraction and calcium hypochlorite stage towers, which extend considerably above the washer elevation. In this way, the washers could be located at relatively low elevation and an extra operating floor elevation was thus avoided. Despite this economy of elevation, the towers are of conventional size and required retention times are not affected.

Especially noteworthy is the fact that the entire bleach plant and the chlorine dioxide generating plant are operated by only two men per shift: a bleach plant operator, whose principal duty it is to operate the plant, and a bleach plant tester, who performs all control tests and who operates the ClO_2 generating equipment. This ultra-modern fully-automated operation is made possible by an outstanding graphic control instrument panel, further described in detail below.

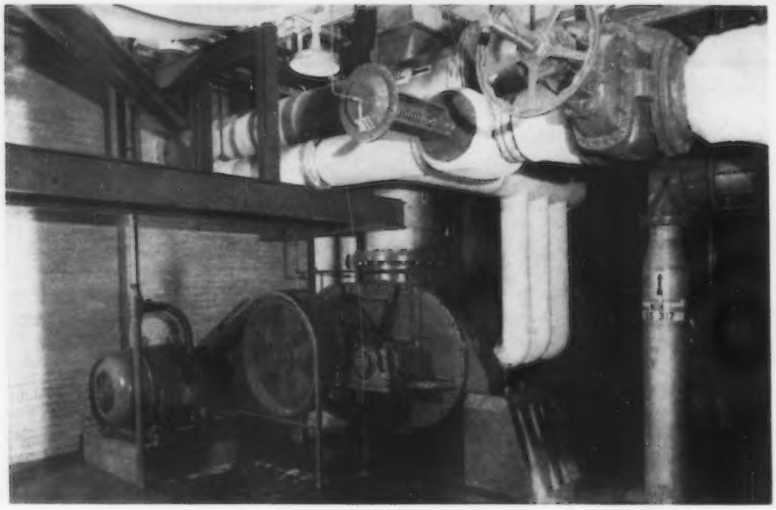
The chlorine dioxide plant utilizes



High-density caustic downflow tower showing circulator, dilution nozzles, level insert, and temperature inserts.

Mixer where chlorine and pulp are combined prior to entry into the upflow chlorination tower. Note throttling valve for chlorine near inlet, U-tube and expansion joint.

Pulp is brought up to 160° F. temperature in this steam mixer prior to being pumped into the upflow chlorine dioxide tower.



the Solvay system and is rated to produce four tons of ClO_2 per day. In the Solvay system, the generation of ClO_2 is accomplished by reacting sodium chlorate solution with sulphuric acid and methyl alcohol. The subsequent chlorine dioxide gas is absorbed in water in a packed absorption tower. Temperature of the absorption water is maintained at the required level in a refrigeration unit. The bleach solution is then stored until used.

The new bleach plant has idled the old facility and no definite plans have as yet been announced for the latter.

Equipment and Process

The unbleached pulp is pumped into a surge chest from a low density storage chest which was part of the old bleach plant. From the surge chest, equipped with an automatic control valve, the stock is passed through a DeZurik consistency regulator where the consistency is adjusted to the three per cent b.d. required by the first bleaching stage. On its way to the upflow 17-foot diameter by 68-foot high chlorination tower, the stock is sampled continuously. The continuous sample is pumped to the operating floor (fourth floor) of the building and from there it is returned to the low density storage chest. After passing through a Wabble-type Impco chlorine mixer, the stock is introduced at the bottom of the steel rubber-lined pump-through tower, conventionally equipped with four tangential agitators. Two of these are located near the tower bottom, one is two-thirds up the tower and the fourth is located close to the top. At a point approximately six feet from the base of the tower, the stock is again sampled. This critical sample of chlorinated pulp is obtained automatically and it represents stock after approximately two minutes of bleaching. This continuous sample is passed through an "ORP" cell which measures oxidation-reduction potential and then subsequently controls chlorine addition by controlling the automatic chlorine flow control valve which is part of the chlorine supply system.

The chlorine supply system includes the necessary liquid chlorine tank cars, a conventional Cl_2 vaporizer, equipped with steam valve and standard temperature controls, plus the ORP cell-regulated control valve which controls the addition of gaseous chlorine at the stock-Cl_2 mixing point.

From the top of the chlorination tower, the stock is dropped to the plant's first 11-foot, 6-inch by 16-foot, rubber-covered Impco washer, located well below the tower's top level, as mentioned previously. The first showers at this washer deliver cold water from the mill's regular soft water high tank system. A second series of washers delivers soft, hot water, available from the chlorine dioxide plant's refrigeration process. The stock is diluted with cold soft water and pumped up from a conventional water leg box at the base of the first tower. Delivered to the washer at a consistency of about 1¼ per cent a.d., the stock is thickened to approximately 12 per cent. From this point on the process becomes a high density system.

An interesting sidelight concerning No. 1 washer is that it is equipped with Impco oscillating showers, as are all subsequent washers in the bleach plant.

From the first washer the stock is dropped further to pass through an Impco steam and stock mixer from where it is pumped to the top of the second stage tower with an Impco thick-stock pump.

The caustic tower is constructed

of steel, is lined with tile, and is 14 feet in diameter and 50 feet in height. This is a conventional tower, and it includes two low-level Impco circulators and showers. Dilution water, for the showers is supplied from a tower level leg box. From the caustic tower the stock is pumped to the second washer which is identical to the first in size except that it is not rubber covered. Only cold water is used at this washer.

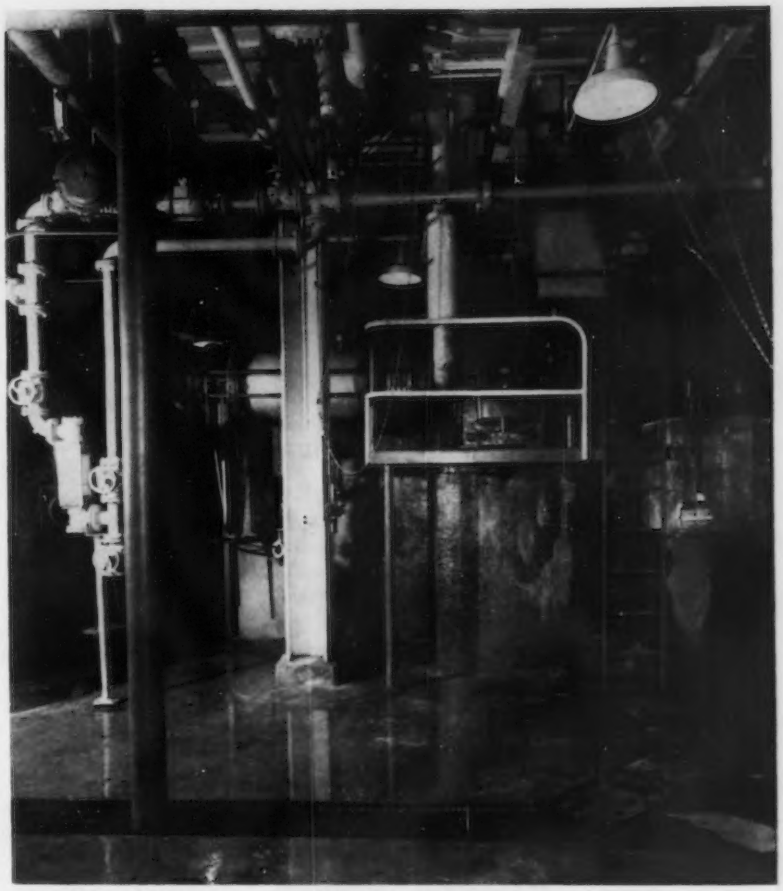
Dropped to another thick-stock pump, the stock is raised to the top of the third, hypo-stage tower. The stock-steam mixer, required by the third step, is located on top of the tower, the only such mixer or washer high-elevation installation in this system. This was done, according to Mr. Bunch, to prevent pipe scale.

Calcium hypochlorite, measured through a Foxboro magnetic flowmeter, is added at a point immediately before the stock is introduced into the mixer. The hypo tower, of steel with tile-lining, 18 feet diameter and 80 feet high, is equipped with two Impco circulators. Shower dilution at the bottom of the tower is again standard. The tower is equipped with two pH extractors installed at approximately 12 feet and 50 feet tower elevation levels. Samples for the customary residual tests are obtained at the lower pH extractor point.

From the bottom of the caustic tower, the stock is passed through a second DeZurik consistency regulator. This results in the following interesting aspect of this new bleach plant installation: By adding this second control point (the second consistency regulator and Foxboro magnetic flowmeter) Mead is able to achieve not only better control, but it has in effect divided the plant into two parts. This aids materially in controlling bleach plant output when a production rate change is in progress due to changing demand by the paper mill.

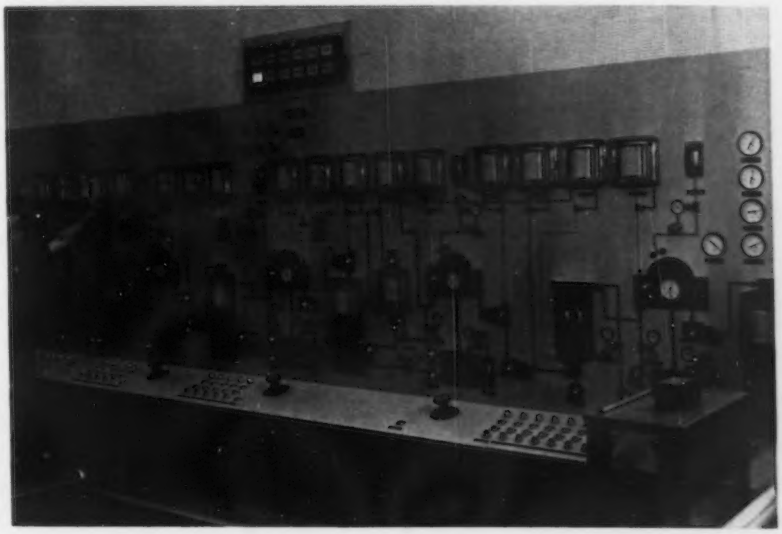
While adjusting stock tower level for a change in production rate, the consistency regulator and magnetic flowmeter substantially aid in reliably measuring the output rate at the bottom of the tower. In turn, this makes closer control of chlorine dioxide addition possible. (A sample is also obtained at the consistency regulator discharge point).

After passing through the after hypo-stage washer and prechlorine dioxide stage mixer (of same size and capacity as previous washers and mixers) the stock is introduced at the bottom of the fourth-stage Kamyr chlorine dioxide tower. The ClO_2 is also introduced at the bottom of the

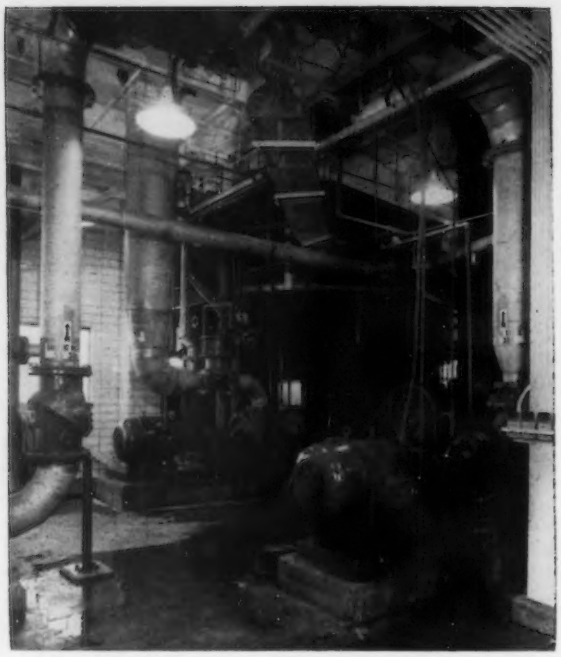


One of the thick-stock pumps and feeders. Note expansion joint, tie rods, and shut-off valve in line between pump and upflow hypochlorite tower.

This schematic control panel enables one-man operation of the bleach plant. There are 62 process control points on the panel, along with a series of alarm indicators.

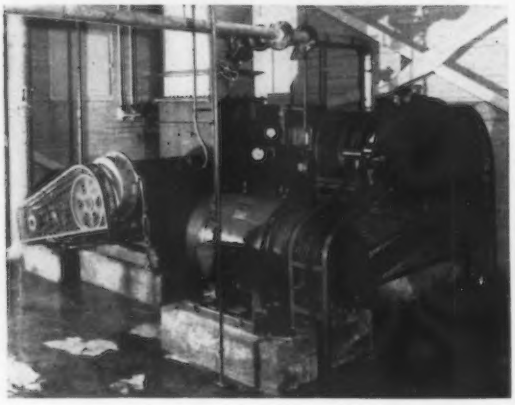


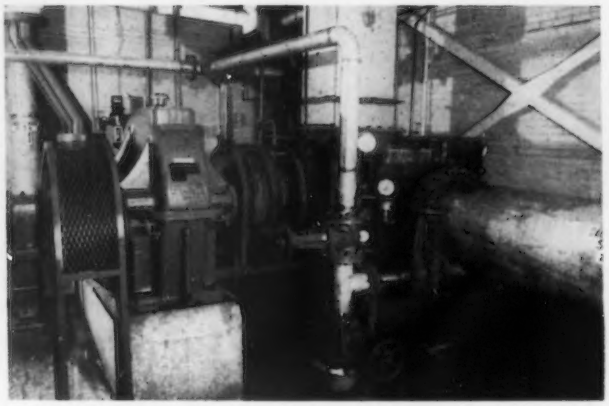
▲ Base of chlorination tower showing two circulators and ORP chlorine control system.



▲ Hyprochlorite tower in the background, showing stock pump, tower drain, dilution nozzles and temperature inserts.

▼ Thick-stock pump showing feeder drive, pump drive, and water connection for flushing through the pump. Stock is received from the chlorine dioxide mi washer and delivered to the high-density storage tower.





Thick-stock pump showing pump-out and drain provisions, packing seal water, and main drive. Stock is being delivered from caustic washer to housed hypo mixer on top of hypochlorite tower. ►

tower, close to the stock addition point, and this rate of addition is also measured with a Foxboro magnetic flowmeter. The fourth stage tower is steel-membrane and tile-lined, 18 feet in diameter and 74 feet high. Samples for pH measurement are obtained at the top of the tower, which is not equipped with agitators. In contrast to the preceding three stages, where dilution water is added at the bottom, here dilution water from the appropriate water leg box is pumped to the top of the ClO_2 tower. Caustic to neutralize any residual chlorine dioxide is added at the stock dilution point at the top of the tower. Sulphur dioxide for ClO_2 neutralization is also available at this point and has in fact been used.

Dropped from the ClO_2 tower and passed through the fourth and final washer, the stock is pumped to the top of a 200-ton capacity standard Impco high-density storage chest. Also a part of the new bleach plant installation, the storage chest is steel with tile lining, 36 feet in diameter, 55 feet high, equipped with one tangential agitator near the bottom of the chest. Facilities for stock dilution to approximately 4½ per cent consistency, also installed near ground level, are part of this chest.

Finally, bleached stock is drawn from the bottom of the tower chest, passed through a third DeZurik consistency regulator and then pumped to a one-ton capacity surge chest in the paper mill's refiner building.

Instrumentation and Operation

The new Mead bleach plant is fully automated, thanks in a large measure to a complex myriad of controlling and measuring instruments. All remotes of these instruments converge into one graphic control panel, the hub of this outstanding plant.

This panel, which makes the one-man plant operation possible, also includes all chlorine dioxide controlling and measuring instruments. The panel is housed in a 16-foot by 26-foot air-conditioned control room, located on the fourth floor. The control room also accommodates the process

TABLE I

OPERATING DATA FOR MEAD CORP. 500 TON CAPACITY BLEACH PLANT

(Figures based on maximum production)

Stage No.	Tower Size (ft.) diam. hgt.	Bleaching Chemical	Agents % Used	Temp. (°F)	Bone Dry Consistency	Retention Time (Min.)	Brightness (Tappi-GE)	Flow (c.f.m.)
1	17 x 68 upflow	Chlorine	3.0	78-80	3	45	—	336
2	14 x 50 downflow	Caustic	2.0	145	13-14	60	—	96
3	18 x 80 upflow	Calcium Hypochlorite	1.3	95-100	13-14	180	74-76	94
4	18 x 74 downflow	Chlorine Dioxide	0.5	160	13-14	200	86-88	84

control test station.

The main bleach plant has 62 process control points which are all part of the control panel. The panel also includes dozens of essential process indicating and recording instruments —complete to a point where even washer vat level indicators are part of the panel. Conspicuously placed at top center of the control board are a series of alarm indicators, which warn the operators by means of lighted, printed tabs and alarm bells if certain critical process-phases should go wrong or out of standard. Like all other engineering and construction work connected with the new plant, instrumentation work was handled by Mead people, from design through installation.

Operator and testing personnel training was completed well before the new plant went into operation. This personnel, almost all transferred from the old bleach plant, was trained by Mr. Bunch himself in a series of well organized training sessions. In all, the men were exposed to 40 hours of training, including "field work" which consisted of detailed explanations of the process, the instrumentation and its location away from the control room. "In this way we developed a group of trained people who know more than merely which button to push and how to set a control according to specification," Mr. Bunch explained.

At start-up, a chemical engineer was assigned to the plant for each shift as a precautionary measure. This aided substantially in bringing the process under control quickly and to quickly alleviate those minor "bugs" which are always a part of the "shakedown period" connected with new processes as complex as this one. Now that production has been standardized, one chemical engineer is assigned to part time process supervision and the daily task of reviewing all test and records data. It is also this chemical engineer's responsibility to recommend process changes as required to bleach plant superintendent Larry Zuber.

Mead spokesmen point out that an excellent means of comparison is possible between the old three-stage bleaching method and the new ClO_2 addition process, because no significant changes were made in the pulp itself. Aside from higher brightness, Mullen and tear have been improved considerably. This speaks well in favor of ClO_2's recognized unique property of resulting in considerably less pulp degradation than the more severe hypochlorite treatment necessary when ClO_2 is not used.

Buildings

The new bleach plant building is 70 feet by 72 feet, with a larger ground floor. It is an 80-foot-high structure, surrounded by the four bleaching towers. All towers have been enclosed at the bottom for operating purposes. The plant's main building has four floors. The ground floor and the operating (top) floor are tile lined and the operating level has red tile flooring. The building is ventilated with filtered air. A convenient bleach plant intercom system with five stations (one on each floor and one in the control room) makes it easy for maintenance, clean-up and other personnel working in any part of the plant, to be called.

The plant now uses approximately seven million gallons of soft water per day for washing 500 tons of production.

The bleach plant chemicals storage area includes two horizontal, glass-lined ClO_2 storage tanks of 15,000 gal. capacity. The concentrated sulphuric acid tank (for ClO_2 generation) is steel and has a capacity of 15,000 gallons. All chemicals fed to the ClO_2 plant are passed through porous stone filters and they are then pumped through a Lapp-Pulsafeeder to the reactors.

SUPPLIERS OF PRINCIPAL EQUIPMENT

Air Compressors	Ingersoll-Rand Co.
Air Dryers	Pittsburgh Lectrodryer Co.
Bridge Crane	Conco Engineering
Chlorine Dioxide Tower	Sandy Hill Iron & Brass Works
Reactors	Knapp Mills, Inc.
Absorbtion Towers	U. S. Stoneware
Liquor Tanks	Pfaudler Co.
Refrigerator	Croll-Reynolds Co.
Chlorine Vaporizer	Whittock Mfg. Co.
Consistency Regulators	DeZurik Corp.
Control Valves	DeZurik Corp.
Instrumentation	Taylor Instrument Co.
Linings, Rubber	U. S. Rubber Co.
Tile	Service & Erection Co.
Motors	Reliance Engineering Co.; Westinghouse Electric Corp.; Allis-Chalmers Mfg. Co.
Motor Controls	Clark Controller Co.
Piping and Valves; Stainless Steel	Grinnell Co.; Felker Bros.
Miscellaneous	Saran-Lined Pipe Co.; Grinnell Co.; DeZurik Corp.; Crane Co.; Fisher Scientific Co.
Power Sub Stations	General Electric Co.
Pumps	Goulds Pumps, Inc.; Warren Pumps, Inc.; Lapp Insulator Co.; Milton Roy Co.; Improved Machinery Co.
PVC Fans & Ducts	Atlas Mineral Products Co.
Steel Towers and Tanks	Chattanooga Boiler & Tank Co.
Washers	Improved Machinery, Inc.
Ventilation	J. O. Ross Engineering

Determining Minimum Chest Levels For Continuous Pumping Applications

A suggested method for calculating the minimum suction level for continuous pumping of paper stock suspensions.

P. J. Olmstead,
Chief Engineer,
Goulds Pumps Inc., Seneca Falls, N. Y.

Successfully operating centrifugal stock pumps in the pulp and paper industry are those pumps which deliver the required amount of stock, plus "over-flow" where required, without pulsing or erratic changes in volumes of flow, and require a minimum of mechanical maintenance. Where continuous or "process" pumping is required, it is generally agreed that the stock must be able to flow steadily to the pump impeller suction at the required rate of flow. The impetus for this flow to the pump impeller suction is the dynamic positive head maintained in the stock chest above the pump suction. Since the stock is a suspension in water, any flow acceleration on the suction side by the pump can easily result in dehydration and erratic flow conditions—the things to be avoided.

The maximum stock consistency that a centrifugal pump can successfully hande is limited by the degree of fluidity and amount of dynamic head on the pump suction to deliver the required amount of stock to the pump impeller suction.

It is also necessary that there be sufficient suction head over the chest opening to the pump suction pipe to prevent vortex formations. Vortices cause air to be drawn into the suction pipe with resultant detrimental effect on the flow plus shortened mechanical life of the pump.

Since the provision of sufficient positive head is solely in the province of mill operators, we offer the following as a guide for determining minimum chest levels for continuous pumping applications.

It must also be remembered that on batch or intermittent service, such as couch pits, etc., or where chests are emptied, the following does not necessarily apply since steadiness of flow is not a factor in the application of the pump.

Dynamic Losses

The dynamic losses from the free level in the source of supply to the pump impeller suction (impeller eye) consists of friction losses in the suction pipe and fittings ($\mathbf{h}_f$), velocity head at the point of highest velocity (usually the impeller eye) ($\mathbf{h}_v$), entrance loss from the chest into the suction pipe ($\mathbf{h}_e$) plus a factor for the agitation that exists in the chest ($\mathbf{h}_a$). Hence, the minimum static head ($\mathbf{H}$) should at least equal and preferably exceed the algebraic sum of the factors or

$$H = (\mathbf{h}_f + \mathbf{h}_v + \mathbf{h}_e + \mathbf{h}_a).$$

The friction losses in the suction pipe and fittings can be determined from available data. Pipes and valves should be selected so that the velocity at the required flow does not exceed five feet per second on consistencies of 2 to 3½ per cent, and four feet per second maximum on higher consistencies. Suction valves should be estimated to have a friction drop equivalent to five feet of the same size pipe. This is for a full open suction valve. Pumps should never operate except with full open suction valves.

Velocity Head at Impeller Eye

The velocity head at the impeller eye can be calculated as follows:

$$\mathbf{h}_v => \frac{\left(\dfrac{\text{Gallons Per Minute } (\mathbf{Q}) \times .321}{.7854 \times [\text{Imp. Inlet dia.} - (\mathbf{D}_1)]^2}\right)^2}{64.4}$$

Impeller inlet diameter (D_1) for various sizes of stock pumps may be obtained from the pump manufacturer.

Entrance loss from chest

The entrance loss from the chest into the suction pipe is calculated as shown below:

$$h_e = K \left[\left(\frac{Q \times .321}{.7854\ D^2} \right)^2 \div 64.4 \right]$$

K = 1.0 up to 2½% consistency
= 2.0 3 to 4% "
= 3.0 4½ to 5% "
= 4.0 5½ to 6% "
D = Diameter of chest outlet

Agitation Factor

The agitation factor could also be called a "factor of ignorance." On chests where direction of agitated flow is not contrary to flow from the chest outlet into the suction pipe and does not exceed a linear velocity of approximately 1 foot per second, a value of .75 to 1.25 feet would be realistic. In chests that have little or no agitation and chests that have violent agitation, a value as high as three feet should be used. Poor hydraulic practices, such as close proximity of in-flow pipes to the chest outlet and free fall of stock from in-flow pipes (not drowned discharges), should also be considered in the selection of agitation factors.

Suppression of Vortices

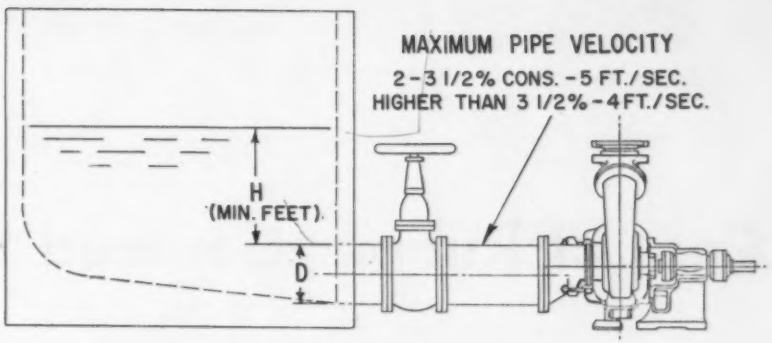
It is mathematically possible, by selection of oversized piping and pumps, that the static head in the chest (H) could be calculated so low that the value of H would be insufficient to suppress the formation of vortices. Therefore, the value of H should also exceed the required submergence to suppress vortices (h_s). Use the higher value of H calculated.

$$H => h_s = 10 \left[\left(\frac{Q \times .321}{.7854\ D^2} \right)^2 \div 64.4 \right]$$

Sample Calculation

Calculate minimum continuous pumping level (H) for the following conditions:

Flow: 250 Tons per day of 4 per cent bleached sulphite or 1000 gallons per minute (Q).



CALCULATION OF MINIMUM SUCTION HEAD (H)
FOR CONTINUOUS PUMPING OF PAPER STOCK SUSPENSIONS.

$H => (h_f + h_v + h_e + h_a)$ Q = Flow in g.p.m.

h_f = Friction in pipe and Fittings

$$h_v = \left(\frac{Q \times .321}{.7854\ D_1^2} \right)^2 \div 64.4 \quad \text{Values } D_1$$

$$h_e = K \left[\left(\frac{Q \times .321}{.7854\ D^2} \right)^2 \div 64.4 \right]$$

K = 1.0 up to 2½% Cons.
K = 2.0 for 3-4% Cons.
K = 3.0 for 4½-5% Cons.
K = 4.0 for 5½-6% Cons.

h_a = Agitation Factor 0.75 to 3 + Feet

$$\text{Also } H => h_s = 10 \left[\left(\frac{Q \times .321}{.7854\ D^2} \right)^2 \div 64.4 \right]$$

Use Higher Value of H Calculated

Chest outlet opening (D)—12 inches dia.

Piping—10 feet 12-inch pipe, 1—12-inch suction valve.

Pump: Fig. 3135 6 × 12 — 14 Impeller eye diameter is 8 inches.

Agitation—Normal to good with no adverse hydraulic practices.

$H => (h_f + h_v + h_e + h_a)$

$h_f = 9.6 \times .15 \times .90 = 1.3$ feet

$$h_v = \left(\frac{1000 \times .321}{50} \right)^2 \div 64.4 = .64 \text{ feet}$$

$$h_e = 2 \left[\left(\frac{1000 \times .321}{112} \right)^2 \div 64.4 \right] = .25 \text{ feet}$$

h_a = H MIN. = 1.0 feet / 3.19 feet say 3.2′

Also

$$H => h_s = 10 \left[\left(\frac{Q \times .321}{.7854\ D^2} \right)^2 \div 64.4 \right]$$

$$H = 10 \left[\left(\frac{1000 \times .321}{112} \right)^2 \div 64.4 \right] = 1.25 \text{ feet}$$

Therefore, use higher value calculated 3.2 feet

MAINTENANCE SERIES
NUMBER 10

Care of Rubber Covered Rolls

High ends? Flat spots? Cracked ends? Uneven wear?—If your rolls have any of these maladies, you should read the article below for the remedy.

R. M. Leighton
Consultant,
Stowe-Woodward, Inc.,
Newton Upper Falls, Mass.

A rubber covered roll is a precision-operating tool, being made to specifications governing hardness, thickness, surface finish, and crown. In operating, periodic inspection and refinishing by grinding should be given without waiting until the roll causes trouble.

Press rolls running at 2000 f.p.m. travel approximately 23 m.p.h. or 552 miles per operating day. The yearly mileage, using 325 working days, is 189,300 miles per year, running under pressures from 100 to 500 pounds per inch.

Let us compare this to something we all have—something which costs approximately the same as a rubber covered roll; that is, an automobile whose price may range from $1,600 to $8,000. Do you know of any automobile which can be driven 189,000 miles in one year with the tires loaded to 300 pounds per inch? It would be difficult to estimate the cost of maintenance, tires, etc., if indeed the automobile could last that long.

Care of Autos and R. C. Rolls

The average automobile owner drives a car between 400 and 500 hours per year, or about 10,000 miles with light loads. The automobile manufacturer gives a list of do's and don'ts for you to follow in order to get the best operating conditions and economy.

Here are a few of these recommendations:

1. Check your tire pressure every time you gas up. A tire which is improperly inflated wastes gas and wears unevenly.

2. Periodic tune-up care saves large repair bills later. A well-tuned engine will give you more gas mileage.

3. Keep brakes in top condition. Brake adjustments save brake and tire wear.

4. Keep wheels aligned and avoid excessive tire wear and bad steering Tight wheel bearings cause drag and waste gas.

5. Switch tires every 5,000 miles.

6. High speed and heavy loads wear tires unevenly.

7. Many states require official inspection to see that the operating parts are in good condition.

The above recommendations we are all familiar with and follow with a fair degree of regularity.

Now let us see how the above can apply to the care of rubber covered rolls.

1. Do no run a roll with uneven loading or worn or improper crowns. Check loading and crowns before trouble occurs.

2. A periodic check-up of roll surfaces for uneven wear, cracking, chemical attack, cuts, and proper surface finish.

3. Keep bearings in first class shape. Undue end play and drag cause roll wear.

4. Keep roll in proper alignment, both vertically and horizontally. Any misalignment causes wear and could under some conditions tear a cover, especially at the ends.

5. Change to your spare before the last moment. Less rubber will be ground off on reconditioning the roll, and any incipient cracking or other damage can be observed.

6. High speeds and heavy loads will wear a roll faster than on a slow running machine. The life of the rolls on two such different machines should not be compared.

7. How many mill managers insist on periodic inspections of their roll-operating conditions and their maintenance before difficulty occurs?

In mill operations, one of the most common problems is cracked ends, especially on older machines. Many times this is caused by overloading one end or by improper crowns. If such is necessary due to poor drying conditions or other mechanical defects, recognize the fact and do not blame the roll cover.

Overloading rolls beyond the maximum extraction point is injurious to your roll, increases your felt and power costs. It is possible to determine the maximum extraction of a press, and beyond that increased pressure has no effect on extraction.

Hot ends can and do cause cracking and loose ends. High ends can be caused by heat expansion from hot journals or bearings. Be sure to relieve pressure immediately when a press is stopped. A flat spot may develop across the face, causing bumping when starting and may not iron

out without regrinding. It is not good practice to run a roll with a deep cut or split in it as water will enter and build up hydraulic pressures which can tear the cover in that area.

There are a number of other troubles, some peculiar to certain mills. We suggest that you discuss these with your roll manufacturer.

Storage of Rolls

All rolls should be inspected on receipt. We recommend this because the roll may have been damaged in transit. If the roll is damaged, the paper which was wrapped around the roll should not be removed until inspected by the manufacturer of the roll as it is possible in many instances to determine where the damage happened from the markings on the paper. It is difficult for both parties if the roll is not inspected for months after receipt at the paper mill.

Rolls should be stored in a cool dark place, at approximately 60 to 70 degrees in a place damp rather than dry, supported on journals or left in cases after inspection. If not in a case, it should be covered with paper or old felt.

A roll should not be brought in from a cold place and immediately installed and operated. Rubber becomes quite stiff below freezing and under some conditions can be frozen. If run immediately, cracking can result. Allow roll to come to room temperature before operating.

If a roll has been in storage for some months, a light grinding cut should be taken to freshen up the surface. The roll may have gone slightly out of round due to the cold flow or sagging of the cover, especially if it is a thick cover. A roll removed from a machine, to be used as a spare and not to be reinstalled for some time, need not be ground at once. It is preferable to grind the roll a few days before you plan to use it. You will get better service with a fresh surface.

"How many mill managers insist on periodic inspections of roll operating conditions and roll maintenance before difficulty occurs?"

"Overloading rolls beyond the maximum extraction point is injurious to your roll, increases felt and power costs. It is possible to determine the maximum extraction of a press, and beyond that increased pressure has no effect on extraction."

Variety of Problems

Paper mills, while all fundamentally the same, have their individual problems and compromises which they must make for the most efficient operation. There are a number of foam killers, oils and chemicals which are injurious and which will soften the cover, causing pick-up, undue wear, and difficult grinding. Your roll coverer has tried to give you a cover to answer your conditions. However, if you change your conditions and get into trouble and then complain, he cannot do much to help you. You should take up any changes of this nature with your roll coverer. He will be able to tell you if your new material would be injurious.

Remember that your roll manufacturer's representative is not a papermaker, but he does know rolls. Consult with him on changes and possible troubles that might develop as well as those on hand.

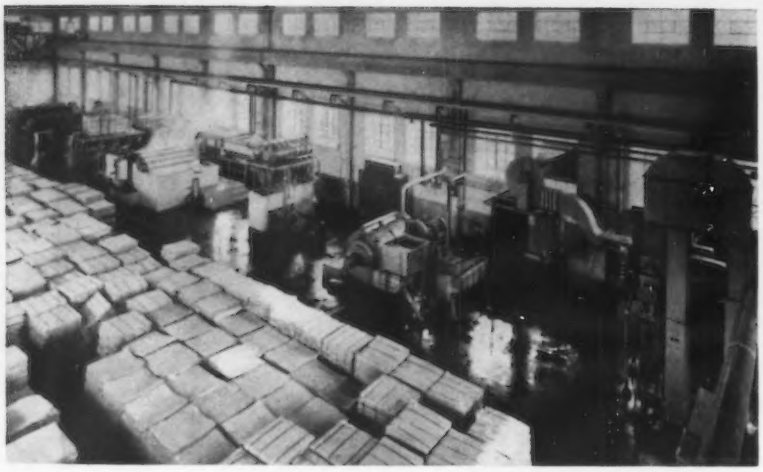
Your roll manufacturer will be glad to furnish printed information on what he considers the best grinding, finishing practice, storage, maintenance and handling.

Are You Aware . . . . .

The above article is No. 10 in Paper Trade Journal's comprehensive series on maintenance of pulp and paper mill equipment. Topics already covered in previous issues are:

Conveyor Belts
Ring Grinders
Jordans
Drive Belts
Lime Kilns
Paper Machine Drives
Rejects Refiners
Vibrating Screens
Modern Pulpstones

More articles on maintenance of basic equipment are yet to come, over 50 in all. They will be reprinted later in permanent book form to provide a valuable up-to-date work on the most important topic in our industry today.



PULP PROCESSING department includes screening, cleaning, and washing, shown here in succession from right to left. Wetlap machine is located at far left.

Italy's Latest NSSC Mill Utilizes Poplar Veneer Wastes

Flavio Frabetti, Plant Engineer, Uti-Le

Stig Johansson, U. S. Machinery Co., New York, N. Y.

The existing wood resources in Italy consist principally of hardwood species such as poplar, chestnut and beech. Of these species poplar has found great utilization in the groundwood and plywood industries.

Chemical pulp requirements are met by the importation of pulp or by the pulping of imported wood. Either alternative leads to high costs. Aims have therefore been made to reduce the softwood chemical pulp content of the furnish by substituting chemical pulps made from native wood species.

Since the present poplar resources have already been consumed to a great extent, early interest has been concentrated on the utilization of low grade wood residue material such as branches, veneer waste, etc.

In 1956, Cavalli & Poli of Cremona, large producer of plywood and frames, felt that its veneer waste could be better utilized than just as a source of fuel. Contact was therefore established with United States Machinery Co., Inc., New York, to determine if the available material as well as poplar branches could be utilized for producing a decent grade of corrugating medium board and even bleachable paper grades.

A quantity of the material mentioned above was sent to Springfield, Ohio, where Bauer Bros. and United States Machinery Co. operate a pilot plant in which full commercial size machinery is installed. The result from the various tests and investigations carried out was encouraging to Cavalli & Poli and a contract was signed between the parties during the spring of 1957 to build a 30T NSSC plant for the production of corrugating medium from poplar. The mill came into operation during December last year. In order to take care of its operation a company named "Uti-Le" had been formed during the spring of 1957.

Under the terms of the contract, the United States Machinery Co., in addition to supplying machinery and equipment for the plant, also provided the engineering services, including supervision, for the installation and erection of equipment and for the startup of the mill.

Wood and Chip Handling

The barking of poplar branches and logs is done in a Cambio 70-21AA debarker capable of handling material from 1½ up to 8½ inches diameter.

For chipping of the veneer waste a Sumner 72-inch veneer chipper with power feed is used. Poplar branches and logs are handled in a separate 50-inch, 16-knife, Norman chipper.

The chips are classified in a 4-ft. by 12-ft. double deck Carthage Dillon vibrating chip screen.

An inclined belt conveyor from the wood room brings the chips to a cylindrical chip silo with conical bottom. This unit has a storage capacity of 11,296 cubic feet. For discharging the chips from the silo an 84-inch Link Belt Rotary Table Feeder is inserted at the bottom of the cone.

Digester Operation

To measure the quantity of each cycle's chips brought into the Bauer Rapid Cycle digester, a metering bin is used. The capacity of the bin is about 1½ digester charges. To control the amount of chips in the bin a Fielden 102W high level controller has been installed.

The Rapid Cycle digester has a volume of 194 cubic feet and is made out of 316 AISI stainless steel. The unit has been tested for maximum operating pressure of 300 p.s.i. and

temperature 423°F. The charging valve is a 20-inch Powell plug valve, hydraulically operated. The bottom valve or discharge valve is from the same source of manufacture but has a diameter of 16-inches. Both valves operate at 1500 p.s.i.

The liquor vessel is also made of stainless steel and has about the same volume. It has also been tested for the same pressure and temperature as the digester body.

The operation of the cooking department can be run manually or automatically through a control panel in which Cypak units are used. This is the first installation in Europe in which the new Cypak systems have been included. Chip filling, presteaming, impregnation and cooking as well as blowing the cook are controlled from the panel and in case of automatic operation, timers, limit switches and level controls will program the entire cycle which is also repeated by itself automatically.

All piping and valves around the digester and liquor vessel are made of stainless steel.

The blow pit is designed with a live bottom and it has a volume of about 530 cubic feet. At the bottom there are nine 10-inch variable pitch screws, which are powered by a variable speed drive. The entire blow pit unit is fabricated of stainless steel.

Pulp Processing

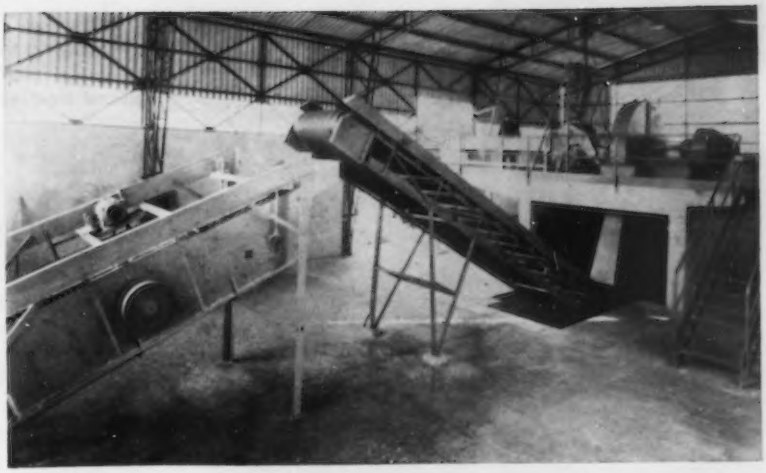
From the live bottom bin the cooked chips are conveyed to a Bauer 460-C Pressafiner driven 150 h.p. motor. Here the chips are given a preliminary defiberization and the residual cooking liquor is squeezed out. Solid content of outgoing material is between 60 to 65 per cent.

Pressafined material is conveyed to a Bauer 400-FV double disk refiner, each disk being driven by a 200 h.p. motor. The motors are cooled by forced air ventilation. Refining is carried out to a Schopper-Riegler freeness number of 14-15 degrees.

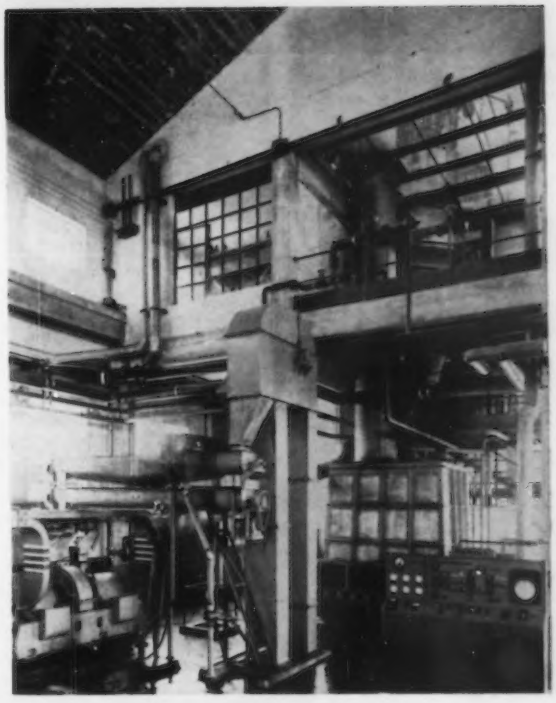
The refiner chest is of Kamyr design and integrates a Kamyr CR3 pump agitator. The volume of the chest is 2120 cubic feet and it is made out of concrete.

Before screening, the stock undergoes consistency control in a Sall type C consistency regulator.

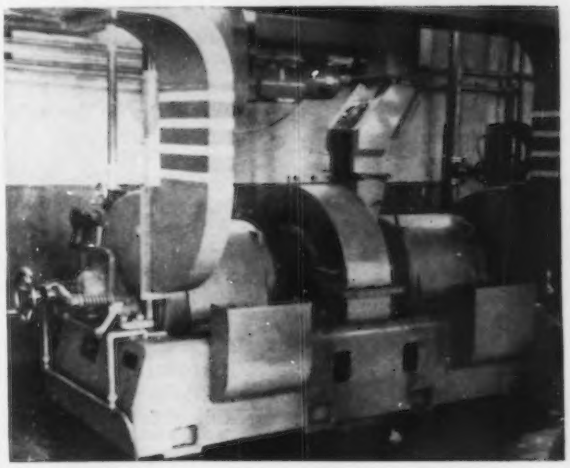
Classification of the refined material is made in a Biffar type RS 4d screen. The screen has two sections. Rejected material goes to a pump pit from which it re-enters the main stock flow ahead of the refiner. The accepts go to a chest where agita-



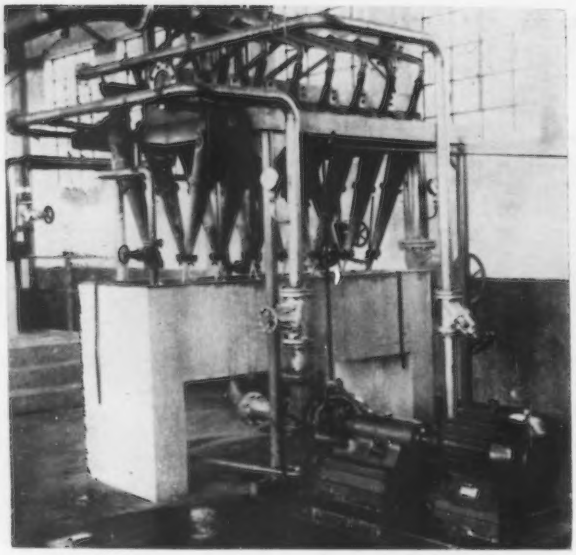
WOODROOM, showing waste wood chipper on mezzanine and inclined conveyor leading to double-deck chip screen.



DIGESTER continuously discharges cooked chips to nine-screw live bottom bin. View also shows digester control console.

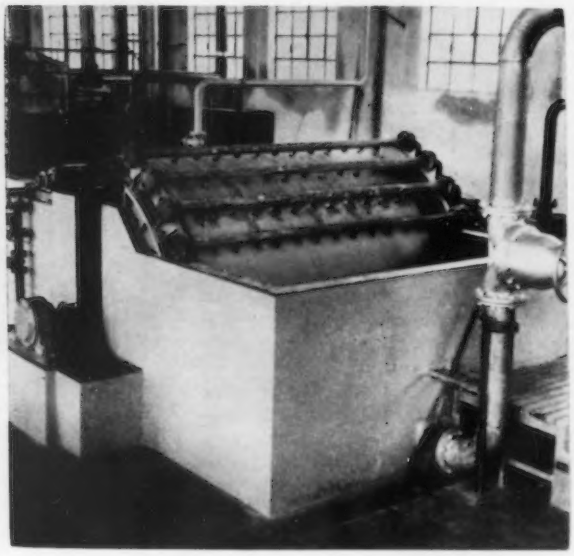


DOUBLE-DISK Refiner defibers cooked chips after they have been screw-pressed to 60 per cent solids.



CENTRICLEANERS arranged in two stages of 12 and 2 units respectively follow the screen. Accepts are passed over to a . . .

. . . LINDBLAD VALVELESS FILTER. Four shower pipes give the unbleached pulp its final wash before it is pumped to the agitated machine chest.



tion is carried out by a Stamo V-Belt Driven Agitator type 1.

Succeeding the screened stock chest is a Bauer Centricleaner battery, comprised of twelve 6-inch No. 606 models in the first stage and two units of the same size in the second stage. Accepts from the second stage Centricleaners are returned to the refiner stock chest.

Accepts from the cleaners are brought to a Lindblad suction filter, diameter 98-inches and width 98-inches. There are four shower pipes on the filter for washing out chemicals which may still be contained in the pulp.

Washed pulp is stored in a 2120 cubic feet Kamyr chest equipped with a Kamyr CR3 pump agitator.

Wet Lapping

Before the stock goes on to the wetlap machine another Sall type C consistency regulator is used to ensure even consistency to the machine filter.

The wetlap machine is of Kamyr design. The filter has a diameter of 6½ feet and a width of 8 feet. There are two press sections. The pulp is not dried before it passes from the presses into the sheet cutter station.

Pulp bales have so far been stored in the pulp mill building itself and on that side where second line of pulping equipment is foreseen. However, a separate storage building will be erected in the near future.

With poplar veneer waste as raw material and with cooking and refining conditions as presently maintained the following figures are to be considered as average ones of Uti-Le corrugating grade pulp.

Schoppen Riegler Freeness		15°	30°	50°
Breaking length	m	5000	6500	9000
Time	min.	0	30	50
Burst	p.s.i.	2.1	3.8	4.2
Brightness	G.E.	44	43	42

Pulp is not bleached at the mill at the present time, although some kind of bleaching system is contemplated at a future date.

Water Supply

Fresh water is received from four wells drilled on the plant site. The wells have a depth of about 69 feet.

The water is pumped out of the wells by vertical submerged pumps with a total capacity of about 1324 g.p.m. per hour. Water is brought to a 26,500-gallon sedimentation and storage basin.

Two centrifugal pumps connected in parallel feed the mill network with fresh water at a pressure of about 29 p.s.i. Under normal conditions only one pump is in operation.

Water for the boiler plant is dehardened by a calcium-phosphate ion exchange system.

A closed white water system has been designed into the pulp mill thereby maintaining to a minimum the requirement for fresh water.

Steam Plant

Steam at 212 p.s.i. and 71 p.s.i. is supplied by a Tosi boiler which is installed in a separate building.

The boiler has a production of maximum 5 tons of steam per hour at a pressure of 355 p.s.i. and 482°F. temperature. Two pressure reducing valves maintain a constant pressure of 612 p.s.i. for the cooking operation and 71 p.s.i. for heating purposes.

The boiler plant operation is controlled at an instrument panel in the boiler room.

All Production Is Sold

The Uti-Le pulp has found great application in the paper industry and has been used in the furnish for newsprint, book grade papers with a slight hydrosulphite bleach, glassine and as top liner for kraft liner board. The economy of the operation has been very satisfactory and it is the intention to expand up to minimum 60 tons per 24 hours.

The operation is based on the most recent ideas in NSSC pulping and in this mill only three men are necessary per shift to run the entire plant.

The venture entered by the Cavalli & Poli Co. has turned out to be an economical and profitable business and it has been proved that even low grade material can be converted into pulp which has great utilization and its own merits.

Georgia Tech Focuses on Improving Material Handling Methods

Possibly the most susceptible area for cost reduction in any pulp or paper mill is that of material handling. Generally overlooked or ill considered, this phase of industry is receiving some attention at Georgia Institute of Technology in Atlanta, Ga. A short course in material handling was given there February 4-6 sponsored by Tech's School of Industrial Engineering and the American Material Handling Society.

Designed to be of particular interest to plant engineers, production control supervisors, managers of shipping and receiving operations and industrial engineers, the program stressed three phases of material handling: the fundamentals, present applications, and the future. In addition, the registrants were given practical problems based upon material handling concepts covered in the course. The solutions were evaluated by a panel of experts.

To demonstrate the value and importance of improving material handling procedures, one speaker noted that, "Material handling adds nothing to a product but cost." Another speaker added that from 20 per cent to 80 per cent of the costs of production or doing business, depending on the type of enterprise, is due to material handling costs. Certainly the pulp and paper industry provides fertile ground for improved material handling. Logs, chips, pulp, chemicals, and paper must be transported and transferred, handled and rehandled until a substantial portion of the cost is due, directly or indirectly, to material handling methods. For those interested in improving these techniques, we recommend the aforementioned short course at Georgia Tech.

Stephen C. Traudt, national president of the A.M.H.S. and industrial engineer for Bird & Son, speaks to a gathering of short course students and members of the Atlanta Chapter.

At left of photo is Dr. Paul T. Eaton, course supervisor being pressed for details by some of the short course students.

Fundamentals

Leading off the first session was M. J. Rowan, chief editor of Modern Material Handling who answered the question—"What is material handling?"—with a definition that it was the movement, storage and control of materials for production and distribution. He pointed out some of the trends in this area; for instance . . . automatic warehouses utilizing gravity conveyors and electronic data processing equipment . . . narrow aisle fork trucks that one company, at least, aims to make completely automatic in respect to height and horizontal travel and eventually eliminating the operator . . . automatic trucks that travel on rails to appropriate loading docks selected by a dispatcher at a central location.

Mr. Rowan pointed out that warehouse space is now being used much more effectively than in the past. He spoke of one firm that is constructing a new warehouse which is only one-half the size that would have been required 12 years ago; at the same time warehousing costs have been reduced.

Speaking on the use of mathematics in material handling, Professor Tee H. Hiett showed how to solve various material handling problems by the application of statistical analysis. For instance, a method was given to determine the best of three locations for an overhead crane used for inter-and intra-department movements. The method used by Prof. Hiett to solve the problem could be applied to many similar situations encountered in the paper industry.

Professor Cecil Johnson continued the fundamentals of material handling with a talk on new theories of time and motion study. He mentioned that conventional time and motion study seems to have gone out of style, being replaced by such terms as random work sampling, multiple work analysis, operations analysis, human engineering or micro-motion study. However, at the right time and place the movie camera and the stop watch are still appropriate tools,

although they have sometimes been misused in the past.

In general, it seems that time study has tended to be overused, while motion study has not been used enough. Prof. Johnson pointed out that probably the most effective users of micro-motion study are football coaches, and that industry should be as concerned about profits as the coaches are about the outcome of a game.

Speaking about time studies, he felt they did not always work and in many cases were not appropriate for improving production. He recommended that jobs be designed so that people work smarter rather than harder.

Practical Aspects

Moving to the practical application of material handling principles, Dr. Paul T. Eaton discussed material handling in warehouses. He analyzed various warehouse activities and how improvements might be made. Dr. Eaton, who is course supervisor as well as vice president of the American Material Handling Society—Region VIII, also covered material handling cost reduction in the absence of Col. John B. Day of Tech's School of Industrial Engineering.

He discussed the importance of the load center of fork trucks. High maintenance costs will be the result if longer forks than the truck is designed for are used, or if the pallets are too large. The method of stacking for most efficient use of fork trucks is also important. Dr. Eaton called attention to the fact that speeds of fork trucks can be increased in attempts to reduce costs, but that actually costs may be increased due to such things as higher accident rates and damage to goods.

Also covered in detail were receiving, warehousing, through (storage to production) and shipping costs. Sample forms were shown and discussed for breaking down the operation and arriving at a cost figure.

Professor Edward C. Franklin gave a rapid-fire talk on planning methods, stating that with the introduction of new methods of operations research, especially mathematical programming and statistical analysis, quantitative planning methods will become more and more practical with and without electronic computers. He covered planning principles, plant procedures and layout, planning methods, cost data, employment variability cost and cost of carrying inventory.

Packaging-handling coordination was the topic of Frank Weber, material handling consultant and vice president of A.M.H.S.—Region V. The importance of this phase was emphasized by Mr. Weber's statement that over $16 billion per year is spent on packaging, involving over $400 billion worth of machinery.

Develops New Dolly

Speaking on new models for material handling decisions, Dr. David C. Eskey showed how mathematics can be applied to certain industrial problems. For instance, one example was a choice of truck routes. By the use of mathematics, the various factors involved in such a problem can be resolved.

T. B. Keene, Jr., chief industrial engineer of Douglas Aircraft Corp., told of the development of a module unit for handling a variety of materials at their Charlotte, N. C., missile plant. The basic unit was a four wheel dolly, 42 inches by 42 inches in size, with a removable handle and a dolly pull for attaching to other units or towing. Sides of the unit were removable and various types and heights of sides were available.

Evening speakers included John Lay, district manager of Rapistan Conveyor Co., and Stephen C. Traudt, national president of the American Material Handling Society and industrial engineer of Bird & Son.

The course was concluded by presentation of certificates by Col. F. F. Groseclose, director, School of Industrial Engineering.

How St. Regis Wards Off Shipworm Attacks on Water-Stored Wood

Snatching away the *teredo's* banquet before he sits down to dine is saving St. Regis Paper Co. huge volumes of wood stored in Puget Sound. Logs infested by the tiny marine borer suffer costly downgrading, materially reduce the log volume, and create production problems for the company's pulpmill, sawmill and plywood plant in Tacoma, Wash.

The teredo borer, scientifically termed *Bankia setacea*, can live only inside wood immersed in salt water. Bark is the log's only natural protection. Where it has been knocked off, the sides of the logs, as well as their ends are subject to attack.

Varying Life Cycle

Since the borer breeds only at certain periods of the year, and whereas these periods vary greatly from one geographical area to another and from one year to the next, a continual watch must be set. Guided by Dr. Paul C. Trussel and associates at the British Columbia Research Council in Vancouver, the method developed is to suspend small blocks of fir in the water at various levels down to the depths of ten feet. From monthly inspection of these blocks, breeding activity of the shipworms can be predicted by the intensity of larvae settlement in the blocks.

When the *Bankia* breed, the embryos become free-swimming microscopic organisms. This larval form must attach itself to submerged wood within 30 days. Then within the next 24 hours the young adult buries into the wood.

As the enlarged grinding head continues to burrow, the worm's posterior end maintains contact with the water. Through two siphons, it takes in food and expels waste. Within four months, the teredo penetrates the wood at the rate of three inches a month. The worm can grow to three or four feet long but this is rare. Since the Bankia cannot leave his burrow, he dies in the grave he literally excavated for himself.

Minimizing Infestation

Since July when St. Regis first introduced a control program, the movement of rafts and bundles of logs is scheduled not only by the visible appearance of borers on the logs, but by the settlement of larvae which occurs weeks ahead of any significant damage. In this way, St. Regis has a two-month head start over marine-borer infestation.

In the event logs become severely infested, a chemical poison is available. The development of the poison was a major feat in itself since the animal can quickly detect most poisons and plug the entrance to his burrow. Soluble alkali arsenite is the poison.

Whenever the poison is used, rigid safeguards approved by pollution control authorities, protect sport and commercial fishing. The poison is dispensed by irrigation sprinkler systems set up along the length of the log boom. Twenty rafted sections of logs can be treated at once. However, St. Regis does not apply the poison except as a last resort.

THE EASY WAY

IMPROVED PRODUCTS
REDUCED COSTS
INCREASED PRODUCTION

The BROUGHTON REMOTE CONTROLLED UNIT VACUUM SYSTEM is one of many systems designed and produced by A. E. BROUGHTON & CO. to help your mill meet the increasing demands of future business.

This REMOTE CONTROLLED SYSTEM guarantees the holding of an accurate vacuum on each individual flat box. Vacuums can be regulated from a fraction of an inch on up—and maintained in increasing or decreasing stages.

RESULTS? More water may be worked into the sheet, less two-sideness, a more uniform watermark and, in most cases, elimination of the flat box vacuum pump!

Write or phone collect for complete information—today!

THE BROUGHTON WAY IS THE EASY WAY TO PROGRESS IN YOUR MILL!

BROUGHTON SYSTEMS FOR PAPER MACHINES

A.E.Broughton & Co., Inc.

Glens Falls, New York Cable Address: Broughtco Tel. 2-6541

AVAILABLE FOR PROMPT SHIPMENT

T.B.P.

(Tributyl Phosphate)

- *Tankcars*
- *Tanktrucks*
- *Drums*

IMPORTANT USES:

ANTI-FOAM AGENT

TBP is one of the most efficent chemicals for preventing undesirable foaming in—

THE
1. Manufacturing Process
2. Can Filling Operation
3. Final Application

OF
1. Synthetic Resin Emulsions (paints, etc.)
2. Paper Coating Compounds
3. Adhesives
4. Inks
5. Textile Sizings
6. Detergent Solutions
7. Many Other Systems

WITH
1. Low Cost (in one application as little as one-drop in a one-pint can before filling with a resin emulsion gave 20% more cans per minute than before.)
2. Practically no residual odor.

SOLVENT METAL EXTRACTION

TBP is widely used for the solvent extraction of certain metals and rare earths. At present, in this field, the largest use is associated with the atomic energy processes both in the initial preparation of the ores and the recovery of spent reactor fuels. Our TBP meets the AEC specifications.

OTHER USES

A high boiling solvent for most natural gums and synthetic resins for lithographic inks, etc. TBP is a recommended solvent with excellent blending power for preparing concentrates of 2-4D acid.

TBP is non-corrosive, non-flammable, with a pour point of <—80°C. and a vapor pressure of only 7.3 mm. Hg at 150°C. These properties suggest its use as a functional fluid for a variety of applications: such as a heat transfer medium.

MAY WE SUGGEST you also investigate KP-140 (tributoxyethyl phosphate) as an antifoam agent.

FOOD MACHINERY AND CHEMICAL CORPORATION

Chemicals & Plastics Division

161 East 42nd St., New York 17, N. Y. Dept. PTJ

Prices of Fibers

MARKET WOOD PULP

FIRST QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l, Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED FEBRUARY 16

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	n.a.
3	$7.50/7.00	$8.50/7.50	$7.50/7.00	n.a.
4	7.00/6.25	7.25/6.25	6.50/6.25	n.a.
5	6.25/5.75	6.00/5.50	6.00/5.50	8.50/7.00
6	5.75/4.75	5.25/5.00	5.25/5.00	6.50/4.50
7	4.75/4.25	4.50/4.00	4.75/4.00	4.25/4.00

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Feb. 22	Feb. 22	Feb.	Feb.
No. 1 Mixed Paper	$ 7.00/ 9.00	9.00/ 11.00	8.00/ —	12.00/ 13.00
No. 1 News	14.00/ 15.00	14.00/ 15.00	16.00/ —	14.00/ —
Overissue News (Lg. size)	13.00/ 15.00	13.00/ 15.00	21.00/ —	19.00/ 20.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	13.00/ —	14.00/ 15.00
Old Corrugated Containers	22.00/ 23.00	21.50/ 22.00	20.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	32.50/ —	35.00/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	22.00/ —	32.50/ 35.00
White Newsblanks	55.00/ 60.00	53.50/ 60.00	40.00/ —	60.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	60.00/ —	70.00/ 75.00
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White nv. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	47.50/ 50.00	47.50/ 50.00	52.50/ —	40.00/ 45.00
Manila Tab. Cards	67.50/ 70.00	67.50/ 70.00	75.00/ —	70.00/ 75.00
No. 1 Col. Ledger	37.50/ 42.50	37.50/ 42.50	45.00/ —	29.50/ 32.50
White Ledger	55.00/ 60.00	58.00/ 60.00	55.00/ —	55.00/ —
Mixed Book & Mag.†	22.00/ 25.00	— / —	15.00/ —	— / —
No. 1 Books‡	22.00/ 24.50	17.00/ 19.00	32.50/ —	16.50/ 18.50

† Includes Time & Life; no coarse groundwood. § Not to exceed 10% of groundwood.

PJT NEWS OF SUPPLIERS

J. J. Moffett

J. Lewis

The Pfaudler Co. announces the appointment of John J. Moffett as manager, export sales department. The Pfaudler Co., a division of Pfaudler Permutit, Inc., is a specialist in Fluidics, a program which combines 75 years of knowledge and experience with a wide variety of equipment offerings to solve problems which involve fluids.

Mr. Moffett joined Pfaudler in 1952 as an export sales correspondent following work with Smith-Corona as a government sales representative in Washington, D.C. He is a native of Rochester, attended Georgetown University and was graduated in 1951 with a degree in foreign service.

Pulp & Paper Research Centre, Inc., Lawrence, Mass., has appointed John Lewis, former head of the Paper Engineering Department, Lowell Technological Institute, technical director. The Pulp & Paper Research Centre, Inc., is an organization comprising a fully equipped pilot plant, laboratory and engineering department. Staffed with experienced personnel, the Pulp & Paper Research Centre is engaged in process and equipment research and development both for John W. Bolton & Sons, Inc., with which it is affiliated, and independently for the pulp and paper industry and its suppliers.

Mr. Lewis brings to the Pulp & Paper Research Centre a broad background of close association with the industry. From 1948 to 1952 he was associate professor of chemical engineering in the Pulp and Paper Section at the University of Maine. During this time he co-edited Volumes I and II of the University of Maine Lectures on Pulp and Paper with Professor Lyle C. Jenness. Since 1952 he has been a professor and head of the Paper Engineering Department at Lowell Technological Institute. He received his B.S. and M.A. degrees in chemical engineering from the University of Maine.

Dow Chemical Co., Midland, Mich., has appointed Ted W. Palmer product manager handling synthetic flocculants which have a variety of uses in the paper industry.

Mr. Palmer will be responsible for the sales programing of Separan flocculants and Versene chelating agents.

In the paper industry, Separan NP10 has proved valuable for filler retention and various mill clarification and filtration processes.

Mr. Palmer joined Dow in 1957 and has been a technical salesman on Separan, Versene and Dowex ion exchange resins.

J. W.Hughes

C. D. McIntire

Minneapolis-Honeywell Regulator Co., has appointed James W. Hughes as sales manager of its Valve Division at Fort Washington, Pa., and C. D. McIntire to succeed him as industrial manager of its Midwest region in Chicago.

Mr. Hughes joined the company in 1946 as an industrial sales engineer in the Birmingham branch office where he was manager from 1950 to 1952. He later was industrial sales manager of the Chicago branch office, and for four years was Midwest regional industrial sales manager.

Mr. Hughes will be responsible for all sales activities of the Valve Division, which produces precision automatic control valves for industrial, commercial and military applications. He is a graduate of Georgia Institute of Technology with a degree in industrial management.

Mr. McIntire has been with Honeywell's Brown Instruments Division since 1941, filling assignments in Philadelphia, Cincinnati (where he was a sales engineer and later branch manager), and in Birmingham, as branch manager. He attended Drexel Institute of Technology.

G. A. Heintzemann

P. Fuller

The Dexter Co., division of Miehle-Goss-Dexter, Inc., world's largest manufacturer of printing presses and paper handling equipment, has announced the retirement on February 4, of George A. Heintzemann and Prescott Fuller, longtime president and secretary-treasurer, respectively. The announcement was made at a testimonial dinner at Spring Valley, N. Y., on January 29, 1960.

Mr. Heintzemann joined the company in 1915. After serving in many executive capacities, he succeeded James S. Gilbert, who had been president from 1910 to 1940.

Mr. Fuller received a degree in chemical engineering from Tufts University in 1910 and ran a chemical plant in Niagara Falls, N. Y., for nearly 20 years. Associated with Dexter for almost 32 years, he occupied a number of executive posts before becoming secretary-treasurer and a director of the company in 1947.

Stone & Webster Engineering Corp. has appointed Ralph A. Larsen chief design engineer.

Mr. Larsen who first joined Stone & Webster in 1936 as a draftsman, succeeds Charles D. Lilburn who has been named design consultant. In his new position, Mr. Larsen will be responsible for the design and drafting work of more than 400 men and women in the Design Division of the 79-year old Boston organization.

Joseph T. Ryerson & Son, Inc., has appointed Carl C. Gobdel district sales manager at its Philadelphia plant. Previously manager of stainless steel sales, he retains responsibility for coordinating the sale and promotion of this product.

Mr. Gobdel joined the company in

1936. He served at Ryerson plants in Chicago and St. Louis before assuming the post of manager of the special steel department at Philadelphia in 1945. He is a member of the American Society for Metals.

Valley Iron Works Corp., Appleton, Wis., has appointed E. A. Berry of Longview, Wash., as its representative on the West Coast.

Mr. Berry has a broad background in the paper industry. He has been associated with Asten-Hill Manufacturing Co. and Dorr-Oliver, Inc. He also has ten years' experience with Longview Fibre Co.

Penn-Olin Chemical Co. is now being formed as a joint subsidiary of Pennsalt Chemicals Corp. and Olin Mathieson Chemical Corp. The subsidiary, a $6,500,000 venture, has been organized to produce sodium chlorate and other chlorate compounds, and will be owned equally by the two corporations. Preliminary engineering has been completed, and construction is expected to start within 90 days on a 25,000-ton-a-year plant at Calvert City, Ky.

Pennsalt has produced sodium and potassium chlorate for many years at Portland, Ore. Olin Mathieson has pioneered the development of an efficient patented process for the generation of chlorine dioxide from sodium chlorate. More than 20 Olin Mathieson chlorine dioxide units are now in use in pulp and paper mills throughout the country.

Nalco Chemical Co., Chicago, Ill., has appointed Robert R. Burns, formerly product manager for industrial process chemicals in its industrial division, manager of a newly created commercial development department.

H. S. Johnsson, vice president of marketing, said the new department will search out and evaluate potential new markets and products and direct the marketing of new products until they are ready to be turned over to an operating division.

Mr. Burns is a chemical engineering graduate of Oklahoma A&M college and has been with Nalco since 1956. Earlier he was with the chemical division of Armour & Co. and with Allied Chemical & Dye Corp.

Associated with Mr. Burns in the new department will be Jerome Green, who is presently on the staff of Nalco's Clearing laboratories.

CHAS. T. MAIN, INC.

ENGINEERS

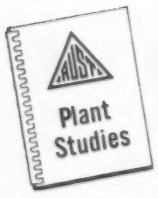
PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

BOSTON, MASSACHUSETTS

CHARLOTTE, NORTH CAROLINA



Industrial Planning

Long range engineering studies, material flow surveys, space reports, complete design and construction services. Rust experience covers all phases of pulp and paper technology. Write for details.

THE RUST ENGINEERING CO.

PITTSBURGH 22 • BIRMINGHAM 3

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Jan. 16	Jan. 23	Jan. 30	Feb. 6	Feb. 13
1960	97.7r	96.6r	96.3r	97.6r	96.4
	Jan. 17	Jan. 24	Jan. 31	Feb. 7	Feb. 14
1959	90.8	90.5	89.2	90.1	88.1

r Revised

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.3‡	—	—	—	—	—	—	—	—	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	94.0

‡ Preliminary

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to date	95.2	94.2	94.6	99.7	94.9	87.0	88.2	96.8
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	94.0	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Jan. 16	Jan. 23	Jan. 30	Feb. 6	Feb. 13
1960	97	95	97	96	96
	Jan. 17	Jan. 24	Jan. 31	Feb. 7	Feb. 14
1959	93	91	92	93	94

COMPARATIVE MONTHLY SUMMARIES

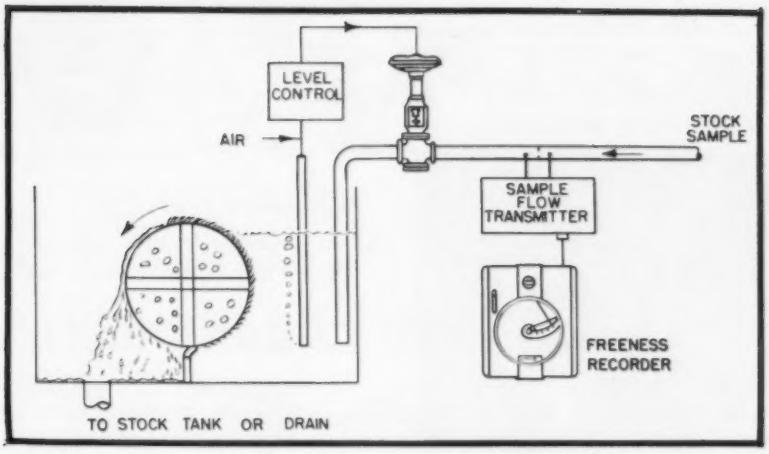
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	—	—	—	—	—	—	—	—	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	97	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Feb. 13, 1960	LAST WEEK ENDING Feb. 6, 1960	CUMULATIVE TO DATE Jan. 1 to Feb. 13, 1960, incl.
% Activity	96%	96%	93%
Total	325,402	320,887	1,880,711
Liner	114,601	107,075	653,800
Corrugating Material	51,911	51,495	294,264
Chip & Filler Board	4,760	5,716	29,310
Total Containerboard	171,272	164,286	977,374
Folding	56,111	57,260	342,048
Set-Up	11,503	11,916	71,750
Special Food Board	30,175	27,738	168,080
Other	56,341	59,687	321,459
Total Boxboard	154,130	156,601	903,337
Total Orders			
Received	304,815	352,417	
Unfilled End of Week	466,834	489,216	

PJT NEW EQUIPMENT & SUPPLIES



Measures Pulp Freeness Continuously

A device developed jointly by the Kimberly-Clark Corp. and Baily Meter Co. is designed to measure pulp freeness continuously. An earlier announcement in PAPER TRADE JOURNAL (January 4, 1960, p. 44) also indicated that the Continuous Freeness Recorder, as the device is called, may incorporate automatic control to maintain freeness at a predetermined level.

The freeness recorder operates as follows: the stock sample at controlled consistency and temperature is pumped into the measuring tank. Here a revolving cylinder is rotated at constant speed. This cylinder is sealed on the sides and bottom so any water drained from the stock must pass through the wire on the surface of the cylinder. The drum is actually a "dandy" roll and the system thus operates similar to a rotary filter or decker.

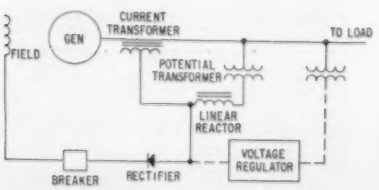
As the cylinder rotates, a film of stock quickly forms on the wire and conditions similar to a wire on a Fourdrinier machine are simulated.

The level ahead of the cylinder is measured and controlled by the valve in the stock sample line. The flow in the sample line thus varies with the amount of water passed through the film of stock and wire. The measurement of this flow is used as the index of freeness.

For convenience the Continuous Freeness Recorder is calibrated in accordance with the Canadian standard freeness tester.

Rotating Parts Eliminated In Static Exciters

A static excitation system concept eliminating moving parts on medium capacity steam turbine-generators has been developed by the General Electric Co. The system was designed by the company to replace rotating exciters. The unit now being built has a 90 kw system for a 25,600 Kva generator.



According to the company some of the advantages to the static design include:

1. It corrects voltage dip quickly, thus assuring minimum disturbance to electrically-powered process equipment.

2. It maintains excitation at a high level during system disturbances, helping relays to clear faults quickly and to restore system voltage to normal.

3. It is flexible in arrangement and requires no special foundations.

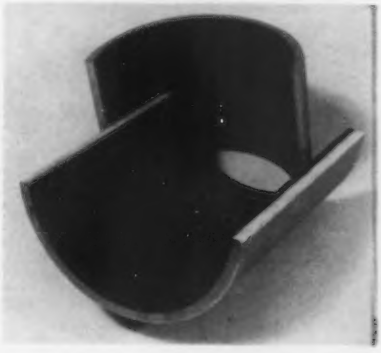
4. Servicing can be undertaken without removing the load from the generator.

The design of the static exciter differs primarily from the conventional in that the power is obtained from connection to the generator terminals, instead of from the mechanical drive of the turbine-generator shaft.

Also the circuit utilizes both a current transformer and a potential transformer as the power source. Each provides about half the normal load.

Greaseless Bearings Successful on Dryer Rolls

A "greaseless" bearing that has been developed by the Panelyte Division of St. Regis Paper Co. runs without lubrication of any kind. It is made of a combination of plastic materials which, when molded together, give the bearing low static and dynamic friction, resistance to corrosion, and high resistance to wear, especially in applications of high load and low speeds.



Panelyte's greaseless bearings were first tried on dryer roll journals approximately a year ago. In the three separate trial installations, users reported the same results: the bearings ran without any lubrication and without wear. Several paper companies are presently equipping entire dryer sections with these bearings for a more complete evaluation. It is expected that in addition to enabling the entire dryer section to run without lubricants, there will also be a reduction in power consumption. Tests will be made to substantiate this.

Because of the initial success of these bearings, tests are also being run in other applications in the pa-

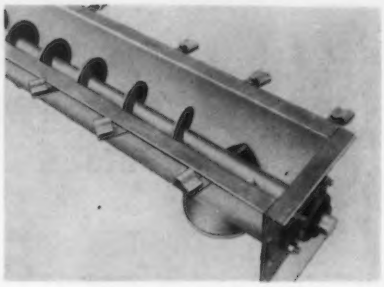
per making process. One example is in the entire wet end of a paper machine where corrosion normally presents a problem.

These bearings are expected to find application in practically every industry where machines are used, says St. Regis. In the near future, other tests will be made with heavy equipment manufacturers where the bearings will be used as flat sliding ways. Because of their low static coefficient of friction, the bearings should also find wide use in all types of reciprocating shafts.

Stainless Steel Screw Conveyors

A line of stainless steel helicoid screw conveyors and ribbon flight conveyors has been announced by The Bucket Elevator Co. of Summit, N. J. Conveyors are available in sizes from 4-inches to 12-inches in diameter.

Standard features include outboard mounted bearings with inboard, removable mechanical seals or stuffing boxes; hinged, drop bottom troughs held in place by quick-opening

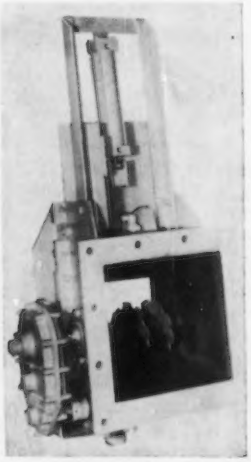


clamps; top covers secured by pivoted "U" type clamps or toggle clamps. Dust tight operation is assured by the use of hollow core and bead neoprene gasketing.

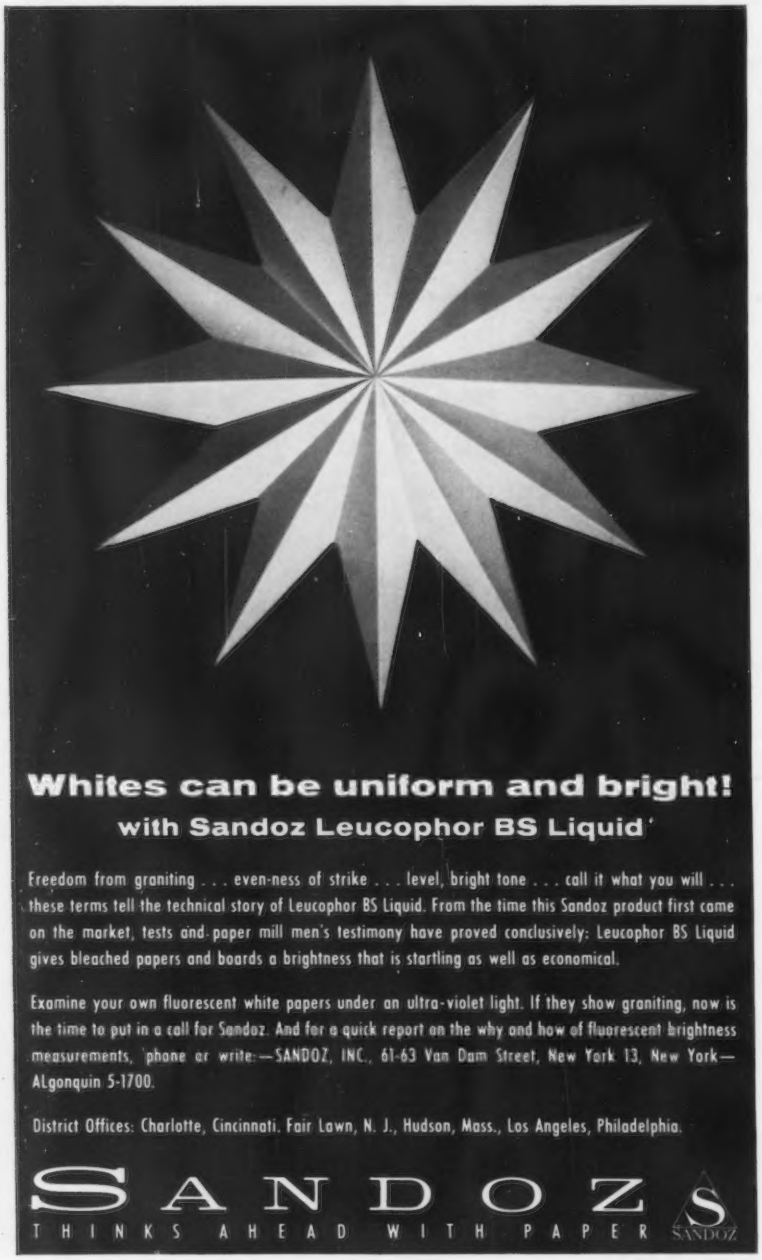
Rotary Helix Feeds Pulverized Materials

The Fairfield Engineering Co. of Marion, Ohio, announces the Fair-Flo Feeder for feeding pulverized materials, available in 9-inch to 14-inch sizes.

It features a 6-inch rotary serrated helix in the body of the feeder which prevents flooding through and



reduces lumps. The helix is driven by an air motor and has an infinite number of speeds. The cut-off gate is a machine fit slide plate actuated by an air cylinder. It closes in two stages with the partially closed position infinitely adjustable for cut-off at a pre-determined weight.


Whites can be uniform and bright!
with Sandoz Leucophor BS Liquid
Freedom from graniting . . . even-ness of strike . . . level, bright tone . . . call it what you will . . . these terms tell the technical story of Leucophor BS Liquid. From the time this Sandoz product first came on the market, tests and paper mill men's testimony have proved conclusively: Leucophor BS Liquid gives bleached papers and boards a brightness that is startling as well as economical.
Examine your own fluorescent white papers under an ultra-violet light. If they show graniting, now is the time to put in a call for Sandoz. And for a quick report on the why and how of fluorescent brightness measurements, phone or write:—SANDOZ, INC., 61-63 Van Dam Street, New York 13, New York—ALgonquin 5-1700.
District Offices: Charlotte, Cincinnati, Fair Lawn, N. J., Hudson, Mass., Los Angeles, Philadelphia.
SANDOZ
THINKS AHEAD WITH PAPER
SANDOZ

Looking for men, money or machinery? Look over our Classified Advertising Section

RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- **The "FAST THREADED" screw stem and ball bearing speeds valve operation.**
- **The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.**
- **The yoke mountings are such that yokes for various methods of gate operation are interchangeable.**
- **Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.**

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS"

RECORD FOUNDRY & MACHINE COMPANY

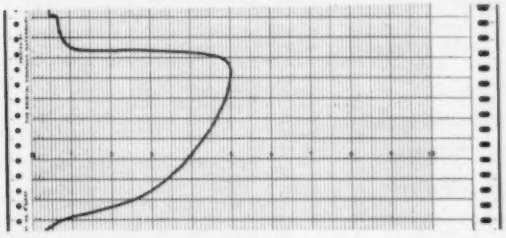
LIVERMORE FALLS, MAINE, U. S. A.

TEST TIPS

FROM THE SCOTT LABORATORY

PAPER TENSILE TEST

Precise, easy-to-understand test curves like this result from testing with ultra-sensitive *electronic weighing*. Test of paper specimen shows tensile strength of 25 lbs. per inch of width . . . ultimate extension 20%. Your paper products, too, can be evaluated accurately—at low cost—with Scott Model CRE Constant-Rate-of-Extension Tester. Available with visual "time to break" indication to meet industry specified procedure. Write for CRE BROCHURE.

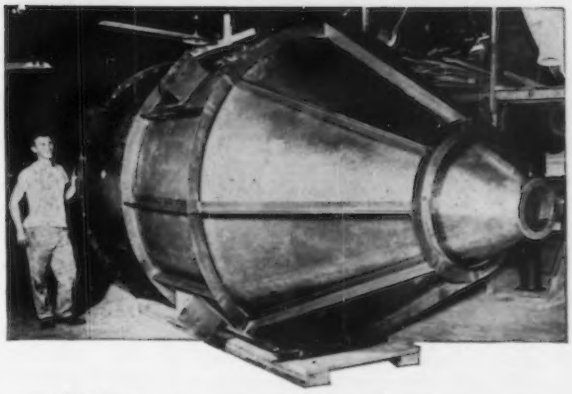


Specimen extension:	1" per min.
Chart speed:	5" per min.
Test capacity:	50 lbs.
Ultimate Tensile Strength	25 lbs.

SCOTT TESTERS

THE SURE TEST...SCOTT!

SCOTT TESTERS, Inc., 51 Blackstone Street, Providence, Rhode Island



du Verre CONSTRUCTION GIVES COMPLETE CORROSION CONTROL ... inside and out!

du Verre resin bonded Fiberglass construction is the answer to corrosion-free, trouble-free mill process equipment. Ducts, Hoods, Tanks, Fans, Vessels of any description can be easily fabricated and field erected at surprisingly low cost. du Verre Construction is strong, light-weight and is offered in a wide variety of resin formulations.

Unlike coatings or linings, du Verre resin bonded Fiberglass is homogeneous in structure giving complete protection inside and out. Painting and maintenance are not required.

Eliminate rust, corrosion and contamination in your mill. Investigate du Verre Construction for your process equipment. Write for your free copy of Bulletin No. 100.

du Verre inc.

duVerre, Incorporated

Box No. 37-E • Arcade, N.Y.

Another Plant To Serve You

SHIP US IN KALAMAZOO

PACKING PLANTS
CHICAGO, ILL.
WASHINGTON, D. C.
CAMDEN, N. J.
KALAMAZOO, MICH.
LOUISVILLE, KY.

THOMAS PAPER STOCK CO.
1500 N. Hooker St. MO-4-5700 Chicago 22, Ill.

PAPER TRADE JOURNAL CLEARING HOUSE

Help Wanted

PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.

PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES

6 East Monroe, Chicago ANdover 3-1970

STAFF ENGINEER

Engineering - construction company active in design and construction of pulp and paper mills seeks a qualified engineer to add to its Pulp and Paper Staff Engineering group. Duties involve providing technical advice to engineering department and working with customers on mill design. Permanent position in home office.

Applicant should be graduate engineer, preferably in chemical or mechanical engineering, with 10 years experience in pulp and paper field.

Please send resume of experience to:

Buell Whitehill, Jr.
Director of Personnel
The Rust Engineering Co.
930 Fort Duquesne Boulevard
Pittsburgh 22, Pennsylvania M-7

FOREMAN WANTED

Experienced in conversion of cellulose wadding and facial tissue, metropolitan area, excellent salary and future. Write Box 60-45 care Paper Trade Journal.

M-28

Help Wanted

BETTER POSITIONS

$6000 to $35,000. Want a substantial salary increase, more opportunity or different location? This national 49 year old service connects you with best openings. You pay us only nominal fee for negotiations; This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 563 Brisbane Bldg., Buffalo 3, N. Y. F-29

MECHANICAL ENGINEER
ELECTRICAL ENGINEER

South's largest newsprint manufacturer has permanent positions available for graduate Electrical and Mechanical Engineers to age 35. Duties are in Mill Engineering Department and include design, cost estimation, equipment selection and layouts, compiling reports, and general engineering work as required in the pulp and paper industry. Prefer applicants with 2 to 5 years pulp and paper mill experience. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement, and vacation programs established. All replies will be treated in confidence. Submit summary of experience to:

Industrial Relations Department

BOWATERS SOUTHERN PAPER CORPORATION

Calhoun, Tennessee TF

PERSONNEL DIRECTOR

Excellent position in Michigan plant of large integrated manufacturer of paper products. This is an opportunity for a man who has had experience in developing and carrying out constructive personnel programs in a progressive business and who has had heavy responsibility in collective bargaining, grievance processing and all other phases of personnel administration. Salary open.

Address resume of experience, including salary requirements to Box 60-47 care Paper Trade Journal.

F-29

PURCHASING AGENT TRAINEE

Excellent future opportunity in large west coast lithograph business established in 1872. Young man, college graduate with background in book paper, bristol and paperboard fields essential. Box 60-40 care Paper Trade Journal.

M-7

Help Wanted Advertisement continued on page 48

GIBBS-BROWER CO., INC.

10 Depot Plaza, White Plains, New York
Telephone—Rockwell 1-1130
Acepsa
BRANCHES: Albenix #4418 Mexico 15, D.F.
400 Wash. Building 5270 E. Wash. Blvd.
Madison 3, Wisconsin Los Angeles 22, Calif.

PRINTING PRESSES

2—42" 4 color Hudson Sharp Central Impression Cylinder Flexo Presses
1—51" 3-color Flexo Press
1—50" 1-color Tailprinter
1—49" 1-color Gravure
1—48" 4-color Cottrell Heinrich Press, 3—Flexo, 1—Gravure
1—33" 6 color Modern Clipper Flexo Press
1—33" 4 color Wolverine Hydro-Printer
1—32" 4-color Schmutz Bag Press
1—40" 4-color W. & H. Flexo Press
1—24" 5-color Kidder Calloprinter
1—24" 4 color Kohlbach Flexo Press
1—25" 3-color Potdevin Flexo Press
1—18" 2-color Potdevin Oil Ink Roll to Roll Press
1—13" x 28" 2/0 New Era Business Forms Press
1—9" x 12" New Era 2-1 with Togglehead
1—2-color #2 Keese Press (Perfect Seal)
1—28" x 42" 2 color Harris TC-109 Letter Press
1—Roll-A-Minute Gummed Tape Press

POWER PAPER CUTTERS

1—47" Late-type Seybold Sabre
Seybolds: Dayton: 35", 56" & 64"; 20th Century: 64", 54" & 38"; Holyoke: 55"; 12Z: 85"; 10Z: 65", 50", 44"; 7Y: 34"; 3Y: 32"; Oswegos: 36"; Dexter: 50", 44" & 32"; C & P: 44"; National: 44".
1—84" Seybold Dayton
1—84" 12-Z Mill Type

CAMACHINES

102" & 160" Type 18
1—82" 10-10
1—65" 10
1—65" Type 9-5
1—62" 40-1-AF
1—62" Type 42, for small rolls
1—55" 10 with Gummed Paper Breaker
1—52", & 1—42" Model 24-7.
1—42", 50" & 62" Type 6
1—55" & 1—65" Type 10

OTHER SLITTERS

1—106" Langston (60" Diameter Rewind)
1—82" Langston Type B
1—65" S & R (Similar Kidder Model C.W.)
1—60" Langston Type A
1—60" Inman With Reeves Drive
1—52" Meisel (Shear-Cut)
1—52" Johnstone Model-14H 400/2000 FPM
1—40" & 1—60" Kidder Model SH, 40" rewind
1—40" Beck Razor Blade Slitter
1—40" Langston "Type A" (Shear-Cut)
1—36" Kidder SLN (Shear Cut)
1—31½" Beck Razor Blade Slitter
2—24", 1—30", 1—36" & 1—40" Kidder S.L. Shear cut

MISCELLANEOUS MACHINES

1—56" Christianson Bronzer accommodating Sheet Size 44" x 56"
2—Cameron Core Cutters
1—Lawtomatic Model "A" Jr. Toilet Roll Wrapping Machine
1—55" Beck CCSH A-S Angle Sheeter
2—36" & 1—45" CSH Beck Sheeter
1—36" Model CSHD Beck
1—36", 45" and 1—55" Globe sheeters
Hamblet Sheeters—32", 45", 64", 104"
2—30" Model UD Peters Cello Sheeters
2—Martini Combination Shirt Bag Machines
2—PO-2 Roto Bag Machines
1—Beasley French Bag Machine.
1—Potdevin Model 110-L Cello Bag Machine
2—Potdevin (Model 111-S) F & S Cello Bag Machine, Electric Eye
1—Matador Model #100 Bag Machine
1—Model-C Cellophane Roto Bag Machine
1—Weber Model "CM" Cellophane Satchel Bottom Bag Machine
1—Model 4-S & 1—Model 5 Potdevin Sack Machines
2—38" x 24" 4-Post Seybold Die Presses
5—Sheridans: 66" x 44", 60" x 30", 50" x 24", 44" x 22" & 36" x 18" and 1—Ford-Smith: 48" x 40"
1—Satchel Bottom Flour Bag Machine Tuber & Bottomer
1—84" SOS Potdevin Bag Machine
2—Smith & Winchester Tubers
1—V-Shape 6 oz. Paper Cup Machine
1—Mercury Hot Paper Cut Machine
1—40½ Hudson Sharp Interfold Toilet Tissue Machine
1—27" x 44" Dietz Single-Fold Towel Interfolder
1—New Hudson Sharp No. 10-T Rotary Towel Interfolder
1—38", 35" & 32" Embossers
2—S & S Automatic Taping Machines
1—Palmer Carton Former F-29

FOR SALE

BARKING DRUM
1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

CALENDER STACKS
1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Carthage Chipper. Anti-friction bearings, with motor

COATER
1—42" Chapman Extrusion Type Coater

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS
1—30" diameter x 72" face.
5—36" diameter x 75" face, with couch rolls
1—36" diameter x 82" face.
3—36" diameter x 90" face, 18" diameter couch rolls.
2—36" diameter x 100" face, anti friction bearings.
3—42" diameter x 106" face.
2—60" dia. x 170" face.

DIGESTERS
1—10' high x 5' dia. High pressure vertical digester.

DISINTEGRATOR
1—Shartle 8" disintegrator (new) with 125 horsepower induction motor (totally enclosed)

DRIVES
1—#6 Reeves vertical—anti friction bearings, totally enclosed.
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)
1—Agitator drive.
1—400 h.p.—Westinghouse Drive.

DRYERS
1—16" diameter x 54" face (steel).
1—28" diameter x 84" face.
2—30" diameter x 48" face with bearings.
2—Calender Dryers, bronze, 30" x 128" with frames, gears & necessary rolls to make up the unit.
1—36" diameter x 44" face.
4—36" diameter x 76" face.
1—36" diameter x 84" face, and gear.
20—48" diameter x 48" face with bearings.
2—48" dia. x 52" face with frames, gears, bearings.
2—48" x 60" face with frames, gears & bearings
1—48" x 96" face.
2—48" x 108" face, with bearings & gears, 125 lb. pressure.
6—48" diameter x 130" face.
32—60" dia. x 157" face, complete with frames, gears, bearings.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—51½" 3-roll Smoothing Calender.
1—57" 3-roll Embossing Calender.
1—62" 2-roll Embosser.
1—90" 2-roll Smoothing Calender.

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—8 Plate "Packer".
1—12 Plate "Packer".
2—12 Plate "Packer" Stainless Steel Vats

FRAMES
Beloit Heavy Duty Dryer Frames for 100 Dryers (42" dia.) 4 Stack, Immediate Delivery.

FOR SALE

HOGS
2—Mitts Merrill Type 15 C. F.

JORDANS
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Monarch, Type D, anti friction bearings.

LABORATORY EQUIPMENT
1—4" face x 36" diameter Saveall
2—12" x 12" Sheet Molds.
1—Washer for 5 lb. Beater.
1—24" Saveall, stainless steel.
1—20" Fourdrinier Wet End & Press Section.
2—8" x 8" Valley Sheet dryers.
1—12" x 12" Valley Sheet dryer.
1—Experimental Digester (High Pressure).
1—5 lb. Valley Beater.
1—15 lb. E. D. Jones Beater.
1—8" x 8" Valley Hydraulic Press.
1—Greene Freeness Tester.
1—Cady Micrometer.
1—High speed Jordan, anti-friction bearings.
7—Mullen Testers.
1—2 qt. Auto Clave, Stainless Steel.

LAMINATING MACHINES
2—84" Asphalt laminators.

LOG SPLITTER
1—Carthage 4-way, Hydraulic Log Splitter.

MISCELLANEOUS
1—#1 Miami Selectrap.

MOTORS
4—25 h.p. Westinghouse, totally enclosed, ball bearing, 705 r.p.m

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 12" x 100".
1—Chilled iron, chrome plated 10" x 74".

PULPER
1—#1 Jones Pulp Master.

PUMPS
1—Economy Fan Pump 6000 g.p.m., 20' head, 50 h.p. motor.
1—Morris-10,000 g.p.m. 25 ft. head (all bronze).

REELS
1—"2" Downingtown Reel, 2 bowl.
1—84" 3 bowl revolving reel.
1—86" 2 bowl reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—116" Downingtown, 2 bowl, anti friction bearings.
1—123"—3 bowl Revolving Reel.
1—134" 2 drum.

REFINERS
1—Rice Barton Dynofiner, details on request.
1—12" Wiener Refiner, with 200 h.p. motor.
1—double disc Bauer Refiner, with 2-150 h.p. motors.
1—double disc Bauer Refiner, with 2-50 h.p. motors.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
4—#2A Bird Rotary Screens, copper vats.
7—Trimbey, Senior Knotter Screens.
1—#2A—50 Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS
1—24" Continuous Saveall, stainless steel.
1—LaMorte, 48" diameter x 82" face cylinder mold.
2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.
2—Savealls, Rice Barton, cast iron vats, cylinder molds 42" diameter x 128" face, complete with 18" diameter couch rolls, all in very good condition.

SCREEN PLATES
Bird Rotary screen plates.

SHEETERS
1—44" Spot Sheeter Complete
1—60" Hamblet with layboy.

FOR SALE

SHREDDER
1—16" "Swift" Paper Shredder.

SLITTERS & WINDERS
4—42" Cameron Type 6.
1—42" Cameron Type 40-2.
3—50" Cameron Type 6.
3—52" Cameron Type 9.
1—56" Cameron Type 26-3A.
1—62" Cameron Type 6
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—102" Cameron Type 18, 60" diameter.
1—122" Cameron Type 18, 60" dia. antifriction bearings.
1—64" Waldron, Shear cut.

SLITTING DEVICE
84"—Quick change slitting device shear cut, complete, practically new.

STOCK PUMP
1—10 x 20 Shartle Triplex.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127½" face 26" diameter.

SUCTION COUCH ROLL
1—Beloit, 36" diameter x 246" face, SKF bearings.

SUCTION FELT ROLLS
1—Gilbert & Nash 122" face.

SUCTION PRESS SHELL
1—14" diameter x 100" drilled face, suction Press Shell only.

SUPER CALENDER STACK
1—9 Roll 56".

TABLE ROLLS
30—4" dia. x 130" face (will cut to size).
50—8½" diameter x 130" face, brass covered.

THICKENERS
2—Iron End Vats with 36" diameter x 84" face Cylinder Molds and 20" diameter couch rolls, including spare cylinder mold and spare couch roll, all anti friction bearing equipped.

TOILET WINDERS
1—72" Hudson-Sharp (Surface type winder).

TRIMMERS
1—75" Seybold.

VACUUM PUMPS
3—#1 Nash Hytor.
2—#3 Nash Hytor.
1—#4 Nash, with motor.
3—#6 Nash Hytor (Bronze).
1—#7 Nash Hytor, with 75 h.p. synchronous motor.
1—H-3 Nash.
3—L-4 Nash.
3—L-5 Nash.
2—Connersville, 14 x 20.

VATS
2—D. J. Murray Co. Vats, iron ends, for 42" x 120" cylinder molds, overflow and counterflow.
2—Brand new Downingtown Iron End Vats, copper lined, for 42" diameter x 112" face cylinder molds. Will cut down to your size.

VATS AND MOULDS
5—Stainless Steel Vats, with 36" Dia. x 100" Face Cylinder Moulds, anti-friction bearings. 2 Spare Cylinder Moulds, all in excellent Condition.

VIBRATING SCREENS
1—Hummer electric Vibrating Screen, stainless steel.
1—Selectro 2 stage, 5 ft. x 10 ft.

WET END
1—Complete 2 cylinder Rice Barton, 128" trim.

WET MACHINE
1—84" Kamyr Complete Wet machine.

YANKEE DRYER
1—12 ft. diameter x 181½" face.

Paddy Ross, Pres.

J. J. ROSS COMPANY

377 Frelinghuysen Ave. **Tel.—Bigelow 3-3720** **Newark 12, N. J.**

RESEARCH ENGINEERS

Make a LIFE as well as a LIVING by taking part in some of the most fascinating developments in PAPER TECHNOLOGY while you and your family reside near

Fine Universities and Schools
Cosmopolitan Cities
Favored Vacation Areas

Live in the city or in the country—they are both nearby.

The highly confidential nature of these intriguing development positions prevents any disclosure here. We can only describe them to you in person.

Tell us about YOUR experience—qualified candidates will be invited to visit us at no expense and at a time which is most convenient for YOU.

Your inquiry will be handled in the most confidential and professional manner.

Our Research and Development personnel have been informed about the placement of this ad. Reply Box 60-41 care Paper Trade Journal.

M-14

INDUSTRIAL MARKETING RESEARCH FOREST PRODUCTS—PACKAGING

Internationally known research institute has excellent opportunities for market researcher with good background and experience in forest products and materials packaging. Prefer applicant with degree in chemistry or engineering in addition to training or experience in marketing research, sales, or new product development. Some travel is required. Salary commensurate with educational training and appropriate experience. Send resume to PERSONNEL MANAGER, BATTELLE MEMORIAL INSTITUTE, 505 King Avenue, Columbus 1, Ohio.

M-14

CHEMIST

For applications research on chemicals for new bleaching procedures and new or improved pulping processes. Challenging opportunity to apply theoretical and practical background for development of new and improved methods and for solving important customer problems. Includes research laboratory work and contacts with customers. Prefer applicants with 1 to 10 years experience in paper or cellulose chemistry.

Complete benefit plans. Location in Central New York near the attractive Finger Lakes Area, the Adirondack Mountains, and the Thousand Islands.

Send for detailed résumé indicating salary requirement to:

Central Personnel Office
Allied Chemical Corporation
Solvay Process Division
Syracuse 1, New York

F-29

WANTED
SKILLED PAPER MAKERS

For modern 500 ton Beloit Kraft Liner board machine scheduled for operation in July 1960. High speed, duplex liner experience essential. Good opportunity for young, aggressive machine tenders, back tenders, winder men, fourth hands, and junior stock preparation men. Write Waldorf Hoerner Paper Products Company, Box 1507, Missoula, Montana. Attention: L. L. Karnath, Paper Mill Superintendent, stating in a resume complete work experience, education, age, etc.

F-29

EXCELLENT OPPORTUNITY FOR

Technically trained man for market development of specialty and technical papers. Sales experience preferred, but not necessary. Must have ability to carry out contacts at all organizational levels. Send resume to:

Personnel Department
P. H. GLATFELTER CO.
Spring Grove, Pa.
Phone—Spring Grove 3216 A-4

SALES AND SALES MANAGEMENT— Man wanted to sell coated papers for "non-giant" mill. Not an easy job but a very demanding one. Offers great opportunity for growth and future.
Address Box 60-44 care Paper Trade Journal.

F-29

Wanted
TOUR BOSS

FOR BOXBOARD MILL LOCATED IN PENNSYLVANIA. SETUP AND FOLDING GRADES. STATE AGE, EXPERIENCE, AND REFERENCES. REPLIES TREATED CONFIDENTIALLY.

ADDRESS BOX 60-43 CARE PAPER TRADE JOURNAL.

F-29

WANTED

Plant superintendent experienced in light weight paper on Fourdrinier, also stock preparation pulp and/or waste. Excellent opportunity. Submit complete resume. Address Box 60-36 care Paper Trade Journal.

F-29

WANTED

Man with technical training for paper development work in Pacific Coast paper mill. Preferably someone leaning toward production. Opportunity to advance to supervisory or management position. Specialty paper mill experience desirable. Address Box 60-37 care Paper Trade Journal.

M-7

Situations Wanted

TO TOP MANAGEMENT:

Executive with "Know-How" desires challenging position with ambitious company. Has exceptional knowledge of paperboard, specialties, liner, medium, and converting covering manufacture, technical, and sales fields. Box 60-38 care Paper Trade Journal.

F-29

EXECUTIVE - WORK MANAGER

—in manufacture of boards & papers; their conversion; and film. Wishes change for challenging opportunity. Successful record in production; organization; labor relations, & development. Address Box 60-10 care Paper Trade Journal.

F-29

Sales Representation

SALES REPRESENTATIVE

Leading manufacturer of paper machine specialty equipment desires to contract qualified man for sale of equipment in South America and Central America. Should be in the 35 to 45 age range and presently handling similar accounts. Submit resume to Box 60-29 care Paper Trade Journal.

TF

MIDWESTERN SALES REPRESENTATIVE

Technically trained sales engineer. Twenty-three years experience in box board and folding carton sales. Wide midwestern contacts. Desires to establish immediate representation as manufacturers agent. Write box 60-46 care Paper Trade Journal.

M-7

For Sale

RPM

GROUNDWOOD PULP MILL

Campbellford, Ont., Canada

4—3 pocket Grinders for 2 ft. wood.
1—G. E. 1500 h.p. 2300 V. Syn. Motor.
1—West. 1100 h.p. 2300 V. Syn. Motor.
4—72" single press Wet Machines.
1—62" single press Wet Machine.
3—600 ton Hydraulic Presses.

Pumps, Screens, Valves, etc.
Offered complete and in parts.

ROSS PAPER MACHINERY COMPANY
265 Passaic St., Newark, 4, N. J.
Phone: HUmboldt 2-2177 TF

Buy U. S. Savings Bonds

For Sale

FOR SALE

1—66" Fourdrinier Paper Machine, wire 38' 9" long, 2 Presses, 18 Dryers 28" x 62", Size Press, 3-roll Calender Stack, bottom roll 20" dia. 2 rolls 16" dia. all 62" face, Reel, Winder, also 1 Rotary Screen, Nash Vacuum Pump with motor, Variable speed Main Drive Motor.

The above is the best buy we have ever offered if you can use 8 to 10 tons, heavy weight, high or low grade paper. It can be inspected on original foundation.

Would make excellent experimental machine for big mill. Price under five figures, "as is, where is". A real value for quick sale.

OSBORNE PAPER MILL EQUIPMENT CORP.
Fulton, New York Tel. Ly-2-4254
F-29

For Sale

FOR SALE

We have available a complete 100 ton Ground Wood Mill, from yard conveyors to hydraulic presses, 8 grinders motor driven, 5—96" Wet Machines etc.

Everything intact and was in full operation less than one year ago. Available immediately, and quick action desired.

OSBORNE PAPER MILL EQUIPMENT CORP.
Fulton, New York Tel. LY-2-4254
F-29

MOTORS • GENERATORS TRANSFORMERS
NEW • REBUILT
ELECTRIC EQUIPMENT CO.
WORLD'S LARGEST INVENTORY
CALL COLLECT GL 3-6783
P. O. BOX 51. • ROCHESTER 1, N. Y.

GET THE TECHNICAL BOOKS YOU WANT THIS EASY WAY . . .

SIMPLY CHECK TITLES BELOW—CUT OUT AND MAIL THIS AD TODAY!

☐ **University of Maine Lectures on Pulp and Paper Manufacture** (Series No. 2) illustrated, 373 pages, $7.50

☐ **Modern Methods of Mechanical Pulp Manufacture.** 126 pages on every aspect of groundwood manufacture. $5.00

☐ **Newest Developments in Pulp, Paper and Board Production.** $1.00

☐ **Technology of Coated and Processed Papers,** 738 pages, fully illustrated, $15.

☐ **Pulp and Paper Mill Instrumentation,** 117 pages, $3.50

☐ **Modern Pulp and Paper Making,** (Revised and enlarged 3rd edition) 558 pps. $10.

☐ **Pulp, Paper and Board Mill. Maintenance,** 126 pages, $2.50

Name ..... Title ..... Company .....

Address ..... City .....Zone ..... State .....

Please send remittance with order

MAIL TO: *LOCKWOOD TRADE JOURNAL CO., INC.* 49 West 45th St., New York 36, N. Y.

Jordan Shell and Plug Fillings

TRADE-MARK

POSITIVE

Reg. U. S. Pat. Off.

High Speed Disc Refiner

THE BAHR BROTHERS MFG. CO.

MARION, INDIANA, U. S. A.

BIG TANKS ...or small

quality-built to specifications

Kalamazoo WOOD TANKS

Engineering experience, craftsmanship, selected top-grade tank lumber . . . your guarantee of satisfaction. For large tanks or small, see *Kalamazoo* first. Free estimates and suggestions.

WOOD TANK DIVISION

Kalamazoo TANK and SILO CO. 858 HARRISON STREET KALAMAZOO, MICH.

ADVERTISERS

Albany Felt Co. ..... —
Allis, Louis Co. ..... —
Allis Chalmers Mfg. Co. ..... —
American Bitumuls & Asphalt Co. ..... —
American Bridge Div., U. S. Steel Corp. ..... —
American Cyanamid Co.,
Paper Chemical Dept. ..... —
Dyes Dept. ..... —
Organic Chem. Div. ..... —
Pigment Dept. ..... —
American Paper & Pulp Co. Inc. —
American Potash & Chem. Corp. ..... —
American Steel & Wire Co. .. —
Ames Company Inc. ..... —
Anglo Paper Products Ltd. ... —
Annin Company ..... —
Antara Chemicals, Sales Div. Gen. Aniline & Film Corp. .. —
Apmew, Inc. ..... —
Appleton Machine Co. ..... —
Appleton Wire Works ..... —
Armco Drainage & Metal Prod. Co. ..... —
Armco Steel Corp. 4
Armstrong Machine Works ... —
Asten-Hill Mfg. Co. ..... —
Atherton, James, Ltd. ..... —
Atlantic Coast Line R. R. .... —

Babcock & Wilcox Co. ..... —
Bahr Brothers Mfg. Co. 49
Bailey Meter Co. ..... —
Barco Manufacturing Co. ..... —
Bauer Bros. Co. 22
Becco Chem. Div. Food Machy. Corp. ..... —
Beloit Iron Works Co. ..... —
Binet, Louis et Cie ..... —
Bird Machine Co. 15
Bixby, R. W., Inc. 46
Black-Clawson Co. ..... —
Bolton & Sons 3
Brandon Sales, Inc. ..... —
Broughton, A. E. & Co. 39
Brown Company ..... —
Buckeye Cellulose Corp. ..... —
Buffalo Forge Co. 9
Buffalo Pumps ..... —
Butterworth, H. W., & Sons Co... —

Cadv, E. J., & Co. ..... —
Cadillac Associates Inc. ..... —
Caldwell, Wm. & Co. ..... —
Cameron Machine Co. ..... —
Carthage Machine Co. ..... —
Celgar Ltd. ..... —
Central National Corp. ..... —
Central Soya Co. ..... —
Ciba Company ..... —
Clark-Aiken Company ..... —
Classified Advertising 46
Clearing House 46
Cleveland Crane & Engrg. Co —
Coffin Turbo Pump Co. ..... —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. ..... —
Combustion Engrg. Co. ..... —
Conoflow Corp. ..... —
Conveyair Sales Ltd. ..... —
Corn Products Sales Co. ..... —
Crane Company ..... —
Curtiss-Wright Corp. ..... —

Darling & Company ..... —
DeZurik Corporation ..... —
Diamond Alkali Co. ..... —
Dilts Machine Works ..... —
Dobeckmun Company ..... —
Dodge Mfg. Co. ..... —
Dorr-Oliver ..... —
Dow Industrial Service Div. Dow Chemical Co. .... —
Doyle, J. E., Co. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. ..... —
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. ..... —
Electrochemical Dept. 8
Industrial & Biochem. Dept. —
Pigments Dept. ..... —
Dusenbery, John, Co. ..... —
Duverre Inc. 45

Eaton Manufacturing Co. ..... —
Ebasco Services, Inc. ..... —
Egan Frank W., & Co. ..... —
Electric Mchy. Mfg. Co. ..... —
Elixman Paper Core Co. ..... —
Elwell-Parker Elec. Co. ..... —
Export Supplement ..... —
Extremultus, Inc. ..... —

Fairbanks Morse & Co. ..... —
Falk Corporation ..... —
Farrell-Birmingham Co. ..... —
Fife Manufacturing Co. ..... —
Fisher Governor Co. ..... —
Fitchburg Screen Plate Co. .. —
Food Mchy. & Chem. Sales Dept., Chemicals & Plastics Div. 40
Foxboro Co. ..... —
Frederick Iron & Steel Co. ... —

Garlock Packing Co. ..... —
Gaspesia Sulphite Co. Ltd. ... —
Geigy Chemicals Corp., Geigy Dyestuffs Div. ..... —
General Dyestuffs Co. ..... —
General Electric Co. ..... —
General Mills, Inc. ..... —
General Tire & Rubber Co .... —
Gibbs-Brower Co. 46
Gilbert & Nash Co. ..... —
Glidden Company ..... —
Goodrich Chemical Co. ..... —
Goodyear International Corp. ..... —
Goodyear Tire and Rubber Co. —
Gottesman & Co. ..... —
Goulds Pumps ..... —
Great Eastern Packing & Paper Stock Corp. ..... —
Grinnell Co., The 2
Gurley W. & L. E. ..... —

Hamblet Machine Co. ..... —
Hardinge Company ..... —
Harbison Walker Refractories —
Harris Seybold ..... —
Harshaw Chemical Co. ..... —
Heimbach, Thomas J. ..... —
Hercules Powder Co. ..... —
Hills-McCanna Co. ..... —
Hooker Chemical Co. ..... —
Houghton & Company ..... —
Huber, J. M. Corp. ..... —
Hudson Sharp Machine Co. ... —
Hungerford & Terry, Inc. ..... —
Hunt, Rodney ..... —
Huyck Felt Company ..... —

Improved Machinery, Inc. .... —
Industriplanering ..... —
Ingersoll-Rand Co. ..... —

Jagenberg Werke ..... —
Jenkins Brothers ..... —
Johns-Manville Corp. ..... —
Johnson Corp., The ..... —
Johnson, Alvin H., Co. 22
Jones, E. D., Corp. ..... 18 & 19
Jones & Laughlin Steel Corp... —

Kalamazoo Tank & Silo Co. .. 49
Kamyr, Inc. ..... —
Kellogg, M. W., Company ... —
Kenyon, James, & Son ..... —
Kidder Press Co. ..... —
Knox Woolen Co. ..... —
Koppers Co., Inc. ..... —

Langston, Samuel Co. ..Back Cover
La Papeterie ..... —
Lawson Company ..... —
La Porte Titanium Ltd. ..... —
Layton-Greenfield Inc. ..... —
Lestoil, Inc. ..... —
Link Belt Co. ..... —
Lockport Felt Co. ..... —
Lockwood Directory ..... —
Lockwood Greene Engineers . —
Lodding Engineering Co. ..... —
Lukon, Inc. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —

Magnus Metal Corp. ..... —
Main, Charles T., Inc. 42
Manchester Machine Co. ..... —
Marathon—A division of American Can ..... —
Mead Pulp Sales, Inc. ..... —
Mercury Engrg. Corp. ..... —
Miller Corp., Harry ..... —
Millspaugh Ltd. ..... —
Minneapolis-Honeywell ..... —
Mixing Equipment Co. ..... —
Monsanto Chemical Co. ..... —
Montague Mch. Co. ..... —
Moore & White Co. ..... —
Morden Machines Co. ..... —
Mt. Vernon Mills Inc. ..... —
Murray, D. J., Mfg. Co. ...Cover 3

Nalco Chemical Co. ..... —
Nash Engineering Co. 23
National Gypsum Co. ..... —
National Lead Co., Magnus Metal Div. ..... —
National Starch & Chem. Corp. —
National Tube Div., U. S. Steel Inc. ..... —
New Jersey Zinc Co. ..... —
Nichols Eng. & Research Corp. —
Nopco Chemical Co. ..... —
Norgren, C. A. Co. ..... —
Northeastern Paper Sales .... —
Norton Co. ..... —

Oakite Products Inc. ..... —
Ohio Injector Co. ..... —
Olin Mathieson ..... —

Paper Conv. Mch. Co. ..... —
Parsons & Whittemore ..... —
Patton Mfg. Co. ..... —
Penick & Ford ..... —
Penn. Ind. Chem. Corp. ..... —
Penobscot Chemical Fibre Co. —
Pennsalt Chem. Corp. ..... —
Perkins, B. F. & Sons, Inc. .. —
Perkins Goodwin Co. ..... —
Permutit Co., Div. of Pfaudler Permutit Inc. ..... —
Pfauldler Permutit Inc., Permutit Div. ..... —
Pioneer Paper Stock Co. ..... —
Potdevin Machine Co. ..... —
Powell Valves ..... —
Price & Pierce, Ltd. ..... —
Provident Life & Acc. Insurance —

Raymond, Charles P., Service Inc. ..... —
Record Fdy. & Mch. Co. 45
Red Ray Mfg. Co. ..... —
Rhoads, J. E., & Sons, ... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Robbins Instrument Co. ..... —
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Ross, J. J., Co. 47
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp. .. —
Ross Paper Machinery Co. ... 49
Ruderman Machinery Exchange ..... —
Rust Enginering Co. 42
Ryerson, Jos. T. & Son ..... —

Sandoz, Inc. ..... 21 & 44
Sandy Hill Iron & Brass Works 6
Scapa Dryers Inc. ..... —
Scott Testers 45
Seaboard Air Line R. R. Co. ..... —
Shartle Div., Black-Clawson Co. ..... —
Shawinigan Resins Corp. ..... —
Sheffield Corp. ..... —
Shuler & Benninghofen ..... —
Shy, C. D. & Company ..... —
Signode Steel Strapping Co. .. —
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
SKF Industries ..... —
Smidth, F. L. & Co. ..... —
Socony Mobil Oil Co. ..... —
Sonoco Products Co. ..... —
Southworth Machine Co. ..... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. ..... —
Staley Mfg. Company ..... —
Stebbins Engrg. Co. ..... —
Stein, Hall & Co. ..... —
Stephens-Adamson Mfg. Co... —
Stone & Webster Eng. Corp. . —
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co. ..... —
Sunday, George M., Assoc. ... 46

Taylor Instrument Co.'s 17
Taylor-Wharton Company .... —
Techno Corp. ..... —
Tennessee Coal & Iron Co..... —
Tennessee Corp. ..... —
Testing Machines ..... —
Texaco, Inc. ..... —
Texas Gulf Sulphur ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 45
Titanium Pigment Corp. ..... —
Torrington Company ..... —
Turner Halsey Co. ..... —

United Engrg. & Fdy. Co. ... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corp. ..... —
U. S. Rubber Company ..... —
U. S. Steel Corp. ..... —
United States Steel Export .. —
United States Steel Supply Co. —

Valley Iron Works ..... —
Vanderbilt, R. T., Co. 10
Virginia Smelting Co. ..... —
Voith, J. M., G. m. b. h. .... —

Waldron-Hartig Div., Midland Ross Corp. ..... —
Waldorf Industrial Controls ... —
Walworth Co. ..... —
Weber, H. G., Company ..... —
West End Chemical Div., Stauffer Chem. Co. ..... —
Westvaco Div., Food Mchy. & Chem. Corp. ..... —
West Virginia Pulp & Paper Co. ..... —
Weyerhaeuser Timber Co. .... —
Wheeler Roll Co. ..... —
Williams-Gray Co. ..... —
Wisconsin Wire Works ..... —
Witco Chemical Co. ..... —
Woodpulp, Inc. ..... Front Cover
Wood's, T. B., Sons Inc. .... —
Wyandotte Chem. Corp. ..... —
Wyatt Metal & Boiler Works —

Yarnall-Waring Co. ..... —

While we strive for accuracy in preparing the above index which is purely a service to our readers, we cannot be responsible for errors.

PAPER TRADE JOURNAL

BUSINESS STAFF

Arthur E. Gordon, Business Mgr.

Francis J. Gordon — Alrick Man

New York 36, N. Y. 49 W. 45th St. Plaza 7-2370
Cable: "Lockmin"

CHICAGO 3, ILL.: H. K. Vinton
Room 1020, 79 W. Monroe St. CEntral 6-2784

PITTSBURGH 11, PA.: H. L. Poulton
610 Pennridge Road. HEmlock 1-1671

MIAMI 38, FLA.: Hal Moore
279 N. E. 79th Street. PLaza 8-5516

Rep. by McDonald-Thompson in:

LOS ANGELES 5, CAL.: R. Teeter
3727 W. Sixth St., DUnkirk 7-5391

SAN FRANCISCO, CAL.: Cal Wood
625 Market St. YUkon 1-2245

DENVER 3, COLO.: Bob Heidersbach
620 Sherman Street. KEystone 4-4669

PORTLAND 4, ORE.: Fred Goetz
404 Times Bldg. CA 2-5146

DALLAS 19, TEXAS — Parker Harris
2727 Oak Lawn Ave., LAkeside 7-1324

HOUSTON 6, TEXAS: F. Vickrey
Room 214, 3217 Montrose Blvd. JAckson 9-6711

SEATTLE 4, WASH.: H. Abney
1008 Western Ave. MA 3-3766

Frederick B. Grosse, Production Mgr.
New York 36, N. Y. 49 W. 45th St. Plaza 7-2370
Cable: "Lockmin"

Foreign Representatives

EUROPE except U.K. & Germany
John Ashcraft
67 Avenue des Champs Elysees, Paris, 8.

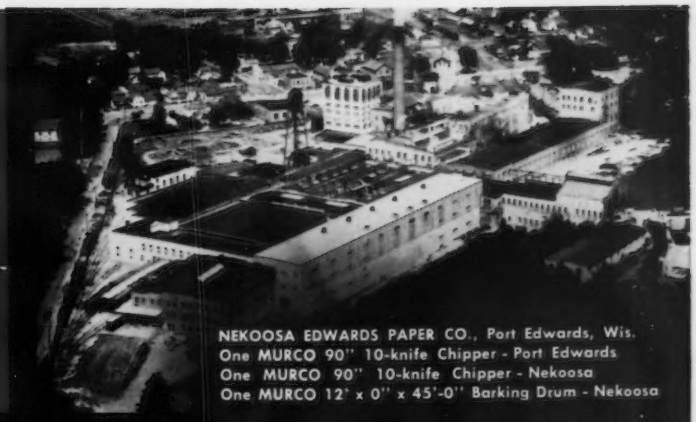
GERMANY
Herbert Morgenbesser
Kohlgarten, 3, Hamburg-FU. Phone 59-82-83

TOKYO, JAPAN
George C. Olcott, Business Manager,
International Media Representatives Ltd.,
Shadan Hojin, 14.2—Chome Marunouchi

UNITED KINGDOM
John Eckford-Prossor, Agent,
Stafford House, Norfolk St., Strand, London, W.C.2
Phone TEmple Bar 7397

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

Teamed to make Paper Progress Possible



NEKOOSA EDWARDS PAPER CO., Port Edwards, Wis.
One MURCO 90" 10-knife Chipper - Port Edwards
One MURCO 90" 10-knife Chipper - Nekoosa
One MURCO 12' x 0" x 45'-0" Barking Drum - Nekoosa

GAYLORD CONTAINER CORP.
Division of Crown Zellerbach Corp., Bogalusa, Louisiana
Two MURCO 96" 6-knife Chippers
Two MURCO 12' x 45' 3-section Barking Drums
Two MURCO 12' x 45' 2-section Barking Drums

MURCO

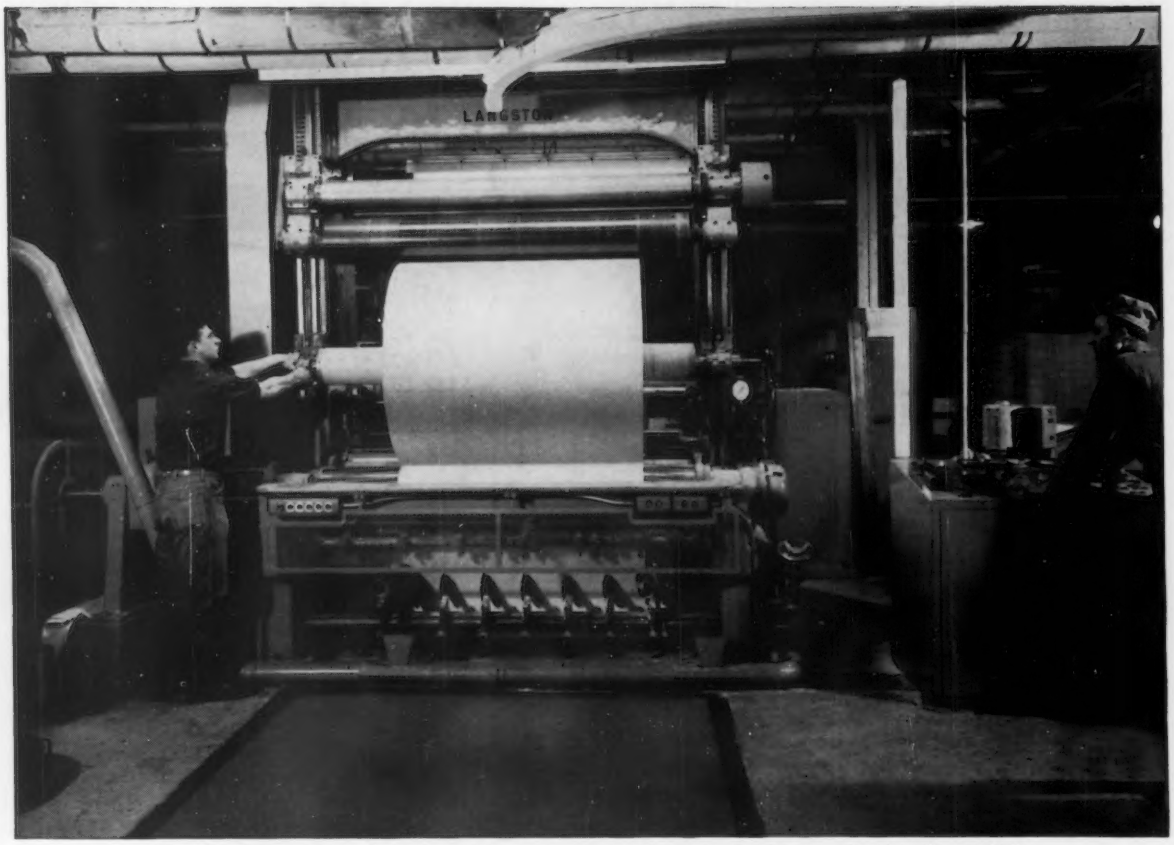
Heavy Duty Equipment!

STERLING PULP & PAPER CO., Eau Claire, Wis.
One MURCO 90" 10-knife Chipper

MINNESOTA & ONTARIO PAPER CO.
International Falls, Minn. (Upper left)
One MURCO 88" 10-knife Chipper

TRADE MARK MURCO REG. U.S. PAT. OFF.

D. J. MURRAY
MANUFACTURING CO.
WAUSAU • WISCONSIN



New 72-inch Type CA Langston Slitter and Winder in Marathon Corporation finishing room handles rolls up to 60 in. in diameter at speeds up to 1500 ft. per minute. Finished rolls are lowered by hydraulic drop shown in foreground.

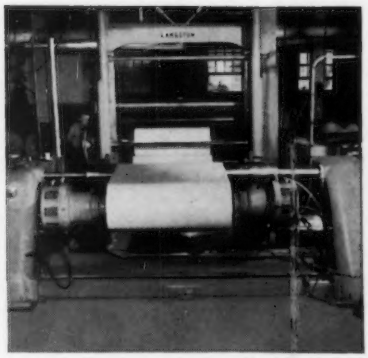
New Langston Slitter and Winder helps Marathon cut operating costs

This new Langston Slitter and Winder installation at Marathon Corporation's Rothschild, Wis., mill is already helping the company cut costs and speed processing of quality paper and board.

For example, the power-operated shaftless unwind stand virtually loads itself. No crew is needed to bull heavy shafts into place. And the Langston hydraulic roll ejector permits 1-man removal of finished rolls. These two features alone are saving Marathon several thousand dollars a year. Water-cooled Wichita-type air brakes can be operated from control console.

Besides effecting major operating economies, these Langston machines also pay off in higher quality rolls. The hydraulic rider roll control, for instance, automatically keeps nip pressure constant, regardless of the diameter or weight of the rewound roll. This insures rolls of uniform density with reduced tendency toward wrinkling or telescoping. The shear-cut slitters cut like scissors instead of a knife, shearing cleanly and keeping paper dust to a minimum. The resulting clean-edged, dustfree rolls are easier for customers to process.

Learn how you can benefit from the advantages of Langston Slitters & Winders. Write SAMUEL M. LANGSTON Co., 6th & Jefferson Sts., Camden 4, N.J.



Langston Shaftless Unwind Stand eliminates the time-consuming, back-breaking task of hoisting heavy shafts into place. The hydraulically actuated arms reach out, pick up the roll and lift it to running position—a 1-man, push-button operation.

LANGSTON Leadership...by design